GAS JOURNAL

LIGHT ⁘ HEAT ⁘ POWER ⁘ BYE-PRODUCTS

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VOL. CLXXXVI. No. 3443.] WEDNESDAY, MAY 15, 1929. [81ST YEAR.

Editorial Notes.

North-East Trade Impetus.

ALL who can possibly do so should visit Newcastle-on-Tyne during the run of the Exhibition which the Prince of Wales opened yesterday. It is not only a great effort on the part of the heavy industries of the North-East to lift themselves from the almost overwhelming depression of recent years, and to accelerate the revival of which signs are not lacking, but it is a great exhibition in every sense of the word. We must confess to amazement when we saw what has been produced under the enthusiastic guidance of the local business interests. Our one fear for the success of the venture is that others, too, may fail to realize that the North-East is offering a really first-class show, which claims second place, as regards magnitude, to Wembley, and which, at the very first glance, dispels any ideas of gloom and despondency which may have become associated with the name of Tyneside in recent years. We heartily congratulate its sponsors on the outcome of their effort; we wish them every success; and we have the greatest pleasure in giving this publicity to a work of such national importance.

We must include in this note a reference to the part of gas in the Exhibition. Electricity is powerful on Tyneside, but the Newcastle Gas Company is never found asleep. Gas has secured a wonderful share of the lighting, and has certainly made the most of it. In cooking it shares with no one; the arrangements for catering for an anticipated attendance of four to five millions depend entirely upon gas. In an official circular distributed for Press information, we read that electricity is used for all purposes at the Exhibition—lighting, cooking, &c. We verified this statement by discovering a cookery demonstration in one of the electrical stands.

The thanks of the industry are due to the little band who make a very brave and striking show on behalf of gas in the Palace of Industry. Exhibiting is, we know, a very expensive form of advertising, and in such cases as gas appliances any direct return in proportion to the outlay is hardly to be expected. In the present instance, the individual firms have grouped themselves together with the Gas Company and the British Commercial Gas Association, and, by adopting a uniform and very artistic scheme of decoration, they have formed what constitutes a gas section. By this means not only is the effectiveness of the individual exhibits greatly enhanced, but a much more telling note is sounded for the common interest of the industry than would have been possible without team work.

Manchester's New Gas-Works.

THOSE responsible for the reconstruction of existing gas-works and the erection of new works are showing vision in respect of future expansion of the demand for gas. The new Partington Station of the Manchester Corporation Gas Department, which was described in detail in an illustrated article in last week's "JOURNAL," is an admirable example of this exercise of foresight. The site of the works covers an area of 175 acres, so that there is ample room for future extensions (actually the present gas-making capacity could be increased four times); its altitude is such that gas will generally pass to the area to be supplied with very slight mechanical assistance; and it is well outside the city boundaries. The latter point is indicative of the gas industry's consideration for the public it serves, and is in marked contrast to the methods adopted by the promoters of the Battersea Super-Power Station, on the erection of which we have commented more than once recently. The contrast is all the more remarkable when it is borne in mind that gas production is a process practically devoid of nuisance, while electricity generation from coal means very serious atmospheric pollution.

The new Partington Works also demonstrates what great developments have taken place in gas manufacturing plant and practice during the past decade. Flexibility to meet changing conditions economically and efficiently is one of the chief characteristics of this modern gas-works. The carbonizing plant is constructed in two sections—each of a nominal capacity of 4 million c.ft. of gas—one consisting of Glover-West verticals, the other of Drakes' horizontal retorts. With regard to the former, there are eight settings of eight 40-in. "New Model" retorts; each setting being heated by a built-in producer, though provision is made for heating by gas generated in external producers. "Waste heat" from this plant is utilized for steam raising in Spencer-Bonecourt boilers. The Drakes horizontals are constructed of silica segments, and are fired by producer gas made in one of the largest and most complete external plants in the country. This interesting unit consists of six "Trefois" mechanical breeze-burning producers, with cleansing and exhausting plant, each capable of gasifying 12 tons of coke breeze per diem. To ensure freedom from dust and tarry matter, the producer gas is cleansed by being passed through vertical washers, coke-filled scrubbers, and specially-designed Livesey washers; and it is dried before it enters the setting. The economics of gas manufacture are largely influenced by the length of life of the refractory materials in the car-

bonizing settings; and there is much to be said in favour of heating by cold producer gas externally generated, especially when—as at Partington—coke breeze is employed.

In the "JOURNAL" three weeks ago we spoke in appreciative terms of the unique installation of gas manufacturing plant at the Dawsholm Gas-Works of the Glasgow Corporation. At that works the "Connersville" meter was adopted; and it is significant of the growing reliance placed on this new and compact form of meter that one having a capacity of 8 million c.ft. a day has been installed at Partington. There are two other interesting features of the Partington Works to which attention may well be drawn: First, that the electrical plant is very extensive, practically all the machinery, from small pumps to powerful cranes, being driven electrically; secondly, that the semi-direct system of ammonia recovery is in use.

We publish to-day an account of the opening ceremony which was performed on May 8 by the Lord Mayor of Manchester, Lieut.-Col. G. Westcott, O.B.E. At the dinner which followed the inauguration, several interesting speeches were made; and concerning these, at least two sentiments deserve emphasis. The first is the appreciative comment of Mr. John Terrace, the President of the Institution of Gas Engineers, on the "cautious readiness" of the Manchester Gas Department to adopt new methods and new plant at a works costing nearly one million sterling and situated on an ideal site outside the city. Regarding the site, Mr. Terrace said that the laying of ten miles of mains from Partington into Manchester was a small matter compared with the advantages which would accrue. The second is the congratulation offered by the Rt. Hon. J. R. Clynes, M.P., on the Department's anxiety to afford the best possible working and leisure conditions for their employees. It may be mentioned that housing accommodation for part of the personnel of the new works has been provided at Partington; thirty-one new houses having been built.

Empty Coke Yards?

IN the "JOURNAL" a fortnight ago we suggested that adverse criticism could justly be directed to the casual manner in which some gas undertakings deal with their coke sales problems. We were referring more particularly then to haphazard delivery of smaller orders; and we cited the methods adopted by the Tottenham and District Gas Company as being well worthy of attention and imitation. The week following we were able to record with great satisfaction the fact that out of a total of 59,523 tons of coke available for sale by the Aberdeen Gas Department last year, 55,000 tons were disposed of in the city and suburbs, of which quantity 41 p.ct. was used for domestic purposes. The reason for this demand, we said, lies largely in the Department's keen desire to serve the poorer classes of the community.

A similar desire to treat with equal courtesy large and small consumers is the policy of the Halifax Corporation Gas Department; and Mr. W. B. McLusky's system of "bag" sales, outlined elsewhere in our columns to-day, will create much interest. Mr. McLusky is a very enterprising man who long ago erased from his mental vocabulary the word "monopoly" in connection with the gas industry; and his original scale of charges for gas constitutes one example of his readiness to depart from tradition when the latter is found wanting. Similarly he has departed from the attitude of the traditional "heavy" seller of coke, and welcomes the consumer who wishes to purchase threepenny-worth. He appreciates that "there is always the chance that the very small consumer will become a small consumer, and the small consumer a large consumer," as we said in last week's "JOURNAL." Moreover, apart entirely from the weight of coke which a gas undertaking sells, if the latter metes out equally courteous treatment to all classes of customer, then there is constant building-up of universal goodwill which will spread beyond the confines of the particular undertaking's area.

During the cold spell last winter the Halifax Gas Department were selling as many as 11,000 threepenny bags of "smokeless fuel" per week; and though this number has naturally fallen off with the approach of warmer weather, Mr. McLusky estimates that the sample bags alone—which bags, by the way, are obtainable at the grocers' shops in the area, as well as at the gas showrooms—will absorb 7 p.ct. of the output of coke from the gas-works during the ensuing twelve months. We have purposely quoted smokeless fuel, for in advertising the scheme Mr. McLusky is at pains to point out to consumers that the fuel offered is "a new fuel made by a new process." It is free from water and is easily ignited, and must not be confused with the coke put on the market—not necessarily, of course, by the Halifax undertaking—years ago. We are in hearty agreement with Mr. McLusky's subtle method of ridding consumers' minds of false notions about modern coke—notions gained as the result of old-time experience of a variable and not infrequently an unsatisfactory bye-product of gas manufacture.

We have dealt with one part of the Halifax scheme for effecting satisfactory sales of coke for domestic purposes. Next to the threepenny bag comes the "standard" bag, which is delivered free throughout the area for the sum of 1s. 3d. The sale of coke in standard bags is also increasing, and should represent 20 p.ct. of the total output during the coming twelve months, so that fully one-fourth of all the coke produced at the Halifax Gas-Works will be sold and delivered in bags. Larger deliveries are made by the "cart-load" (12 cwt.), and account for 63 p.ct. of the output.

Our readers will not be surprised to learn that the Halifax Gas Department have no stocks of coke; and we suggest that several other undertakings would be in the same fortunate position if they paid similar attention to the very small and the small consumers, in which case they would not be troubled by the influx of someone else's coke into their areas. Regarding the latter phase of the general coke situation, and bearing in mind that conditions vary widely in different districts, we call attention to the remarks of Mr. Henry Woodall at the luncheon given by the Chairman and Directors of the Tottenham and District Gas Company to the Eastern Counties Gas Managers' Association a fortnight ago to-day. He said that if there was greater co-operation in the matter of coke sales, a solution could be found to their difficulties. Too much coke, he suggested, might be made at one works, and too little at another; and if there was only greater combination between undertakings in definite areas, encroachment of alien coke would be eliminated—to the benefit of the industry, and without injury to the consumer.

A Word of Warning.

IN some sections of the newspaper Press a few days ago there appeared an item which might perhaps have been accorded greater prominence had it not been overshadowed by subjects which must be assumed to make greater appeal to the readers. It did not, it is true, relate to any of the soul-stirring episodes which lend themselves to story and picture such as the great British public apparently take a delight in; but its claim to notice is nevertheless a strong one, for it may affect the homes and happiness of very many of our fellow-countrymen. Since the beginning of things, at any rate as we now know them, big fleas have had little fleas "upon their backs to bite 'em;" and so, also, have there always been people anxious to prey upon their own species.

No sooner does a person contrive, by dint of hard work and heaven alone knows what effort and self-sacrifice, to amass a few pounds, than he, or she—alas, perhaps more often she—becomes the target of other persons who are desirous of accumulating their money without the hard work, the effort, and the self-sacrifice. With the fraudulent company promoter and devious share-pusher, we are all more or less acquainted; and the "JOURNAL" has in the past done sufficient in the way of warning investors against this danger to earn the gratitude of its readers. But the hard-working father of a family, the struggling professional man, the widow, and the orphan—the people to whom a few shillings a week might represent all the difference between comfort and discomfort—more likely than not fail to study papers that would effectually warn them against their danger. Hence the wiles of the unscrupulous so often prove lucrative—lucrative, that is, to

the unscrupulous—and the tragedy is that the losers are just those who can least afford to be deprived of the money. It is the very fact that they have so little which renders them easy victims.

It has always seemed to us that the law allows an uncommonly long rope to unprincipled share jugglers, when an uncommonly short one would be far more appropriate; but now we have—at the moment of writing, awaiting only the Royal Assent—a new Companies Bill, which is claimed to afford fresh protection to the innocent investor. In fact, we are told that one of the great objects of the measure is to strengthen the arm of the law, notably in respect of prosecutions for fraud. Fresh duties are imposed upon the Director of Public Prosecutions, who will have to see that proceedings are taken at the public expense in all proper cases. With the provisions of the Bill which, quite outside any question of fraud, affect the administrators of public companies, we are not at the moment concerned. Our only wish at the moment is to welcome any clauses which may afford additional, and much needed, protection against victimization of the genuine investor. But what do we find? No sooner do the contents of this Bill become generally known, than there is a question put in the House of Commons, "as to whether information had been received that certain share-pushers were endeavouring to avoid the penalties of the new Companies Act, which forbade house-to-house canvassing, by making extensive use of the telephone system, and if any steps were being taken to counteract this."

The reply of Sir Philip Cunliffe-Lister (President of the Board of Trade) is the item of news to which we referred in the opening of this article. He said that he had seen statements in the Press, from which it appeared that share-hawkers were sending letters to persons whose names appeared in the files of companies asking them to supply their telephone numbers for the purpose of receiving information by telephone with regard to investments. "If persons," he added, "assist these share-hawkers by answering the letters and communicating their telephone numbers, it is difficult to afford them any more effective protection than is now being given by the warnings published in the Press." Sir Philip said he thought the Press had performed a public service by giving these warnings to inexperienced investors; and he took the opportunity of expressing entire agreement with such warnings as had been given.

For our part, we should like to have the warnings put before the small investor in even more emphatic form. Seeing how widely gas stocks are held nowadays, and how much is in the hands of these small investors, everything that can be done by gas company executives to put the holders on their guard will be a gain. Directors' reports and house organs would provide a suitable channel. The future welfare of our beloved country may well depend to a far greater extent than at the moment seems probable upon the stake that is held in it by the more humble class of capitalist. Let those of greater experience omit nothing that can add to the protection of those investors who may need it.

The French Gas Congress.

Rouen has been decided upon as the venue of the 1929 Gas Congress, which will be held from June 17 to 23. Details of the programme have not yet been received from our friends in Paris; but none know better than they how to arrange things, and Rouen alone is a sufficient attraction. Evidently the Associations Gazières have kept their eyes upon other dates, for it will clearly be extremely convenient for the enthusiastic delegate to "do" the Institution Meeting in London, pass on to Berlin, and then make the interesting journey to Rouen before coming home via Havre and Southampton.

A Good Idea at Liverpool.

On the first of this month an "all-gas" house, organized by the "Liverpool Evening Express" and equipped by the Liverpool Gas Company, was opened to the public. Admission is free, but the number of people admitted each day is under control. The house is ready for immediate occupancy. The enterprise has aroused keen interest; more than 2000 people visiting the house during the first two days. A description of this excellent form of co-operative publicity will be found in later columns of our issue to-day.

An Appeal to Mr. Baldwin.

Mr. Walter Tapper, A.R.A., President of the Royal Institute of British Architects, has addressed a letter to Mr. Baldwin stating that the attention of the Council of the Institute has been called by their Science Standing Committee to the alarming nature of the risk which it is now realized must be incurred if the proposed erection of immense electric power stations in the heart of the Metropolis is allowed to proceed. On behalf of the Institute, Mr. Tapper urges that so great a risk shall not be incurred without first instituting a thorough inquiry by some authority "qualified to assess at their full value all the public aspects of the matter to which electrical experts intent on their own problems may well have attached inadequate importance."

The Holborn Explosion.

It has been decided by the Holborn Explosion Claims Committee to start a levy fund, based on the amounts of the claims. It is hoped by this means to raise £500 or £600. The number of sufferers registered with the Committee is 136. The Committee have been authorized to appoint solicitors with power to act if advised by counsel to do so.

World Engineering Congress in Japan, 1929.

It will be remembered that towards the end of last year a British Committee on the World Engineering Congress in Japan, representative of some twenty-six engineering and technical societies, was formed; the Committee having for its objects the organizing of a party of British Engineers to attend the World Engineering Congress at Tokyo, and the securing of a number of papers on engineering subjects for presentation at that Congress. As a result of the Committee's endeavours, seventy-six papers have been contributed; and we notice that a paper on "The Economic Aspect of Bye-Product Ammonia," by Mr. P. Parrish, of the South Metropolitan Gas Company, is among those to be submitted by the Institution of Chemical Engineers, of which the author is a member. Another paper to be submitted by the Institution is by Dr. F. S. Sinnatt, of the Fuel Research Board, entitled "The Industrial Importance of the Heterogeneous Character of Coal Seams." The Coal Research Club are presenting two contributions—one by Dr. R. Lessing, on "Coal Cleaning, with special reference to Japanese Coals;" and the other by Mr. C. A. Seyler, on "The Classification of Coal." With regard to the number of the party to represent this country at the Congress, the position is of necessity not yet so well advanced; but it is anticipated that thirty-five to forty representatives will attend.

A "Maison du Gaz" for Paris.

During the holiday season later in the year, all the constituent bodies of the French Gas Industry are to move to new quarters in No. 21, rue Blanche, Paris, which building adjoins that of the Ingénieurs Civils. There a welcome will always await gas men on visit to the Metropolis; and office accommodation and a stenographer will be at their service.

Railway Rates and Charges.

Both customers and well-wishers of the Railway Companies will have noted with pleasure the announcement, in connection with the first annual review of railway charges under the Act of 1921, that it is not the intention of the Companies to put forward any proposals for a general increase of charges at the present time. In coming to this decision, the Companies have had regard to various factors in the economic position of the country; and they are doubtful whether a general increase in charges at this juncture would result in any material improvement of their financial position. While, however, this is their view for the time being, the Companies desire to make it clear that they are not to be taken as in any way precluded from bringing forward proposals for increasing charges so soon as circumstances, in their opinion, justify such a course.

PERSONAL

Mr. J. G. ABBOTT, who has been Assistant Engineer and Manager to the Windsor Royal Gas Light Company for several years, has been appointed Engineer and Manager in succession to the late Mr. H. Buckley.

OBITUARY.

The death is announced of Mr. GEORGE E. DALBY, a Director of the Lutterworth Gas Company.

The death has occurred, at the early age of 32, of Capt. CHARLES FRANCIS NEWTON, the only son of Mr. C. B. Newton, Consulting Water and Gas Engineer to the Hull Corporation. Deceased sustained an accident at his home a short time ago, and developed concussion. He appeared to be making good progress, but had a relapse, and died on May 6. Capt. Newton was educated at Carlisle Grammar School and Hymer's College, Hull, and commenced his professional work as pupil with Mr. R. Nelson, Engineer of the East Hull Gas Company, and later served that Company as Assistant Engineer. A short time ago he secured the appointment of Deputy Engineer and Manager of the Dudley Gas Light Company, and had arranged to take up his duties on May 1.

We regret to have to announce the death of the wife of Mr. LAURENCE H. SENSICLE, Chief Chemist to the Newcastle-upon-Tyne and Gateshead Gas Company.

FORTHCOMING ENGAGEMENTS.

[Secretaries of Gas and Kindred Organizations are asked to assist in making this diary of events as complete and useful as possible by sending the earliest intimation of all meetings.]

May 22.—SOUTHERN ASSOCIATION OF GAS ENGINEERS AND MANAGERS (EASTERN DISTRICT).—Meeting at 28, Grosvenor Gardens, S.W. 1, 2.30 p.m.

May 23.—MIDLAND JUNIOR GAS ASSOCIATION.—Annual General Meeting in Birmingham.

May 24.—NORTH OF ENGLAND GAS MANAGERS' ASSOCIATION.—Annual Meeting.

June 8.—LONDON AND SOUTHERN DISTRICT JUNIOR GAS ASSOCIATION.—Visit to Worthing.

June 19.—ASSOCIATION OF STATUTORY INSPECTORS OF GAS METERS.—Annual General Meeting in the County Hall, Westminster: President, Mr. H. N. Barrow, J.P.

July 5.—MANCHESTER DISTRICT INSTITUTION OF GAS ENGINEERS.—Visit to the Halifax Gas-Works and to the Works of Messrs. Drakes, Ltd.

Sept. 12.—NORTH BRITISH ASSOCIATION OF GAS MANAGERS.—Annual Meeting at St. Andrews.

INSTITUTION OF GAS ENGINEERS.

June 4-7.—Annual General Meeting in London.

GAS STOCK AND SHARE MARKET.

[For Stock and Share List, see later page.]

IN spite of such adverse factors as reparations worries and the New York monetary position, markets last week were cheerful. Speculative securities were mostly favoured, and Oils and Mines showed signs of revival. The close proximity of the General Election was naturally a retarding influence, and the underwriting of the big new Australian loan checked any likely improvement in gilt-edged stocks. In the Foreign Market there was a smart rally in Brazilian stocks. Home Rail business was still limited, but the London group attracted some attention.

The Gas Market was well supported—a large number of transactions being recorded. Imperial Continental and Primitiva ordinary shares were distinctly animated; and in the case of the former Company the prices of the transactions varied from 432 to 480, and the quotation improved 25 points to 450-470. Primitiva shares rose 3s. 6d. to 37s. 6d.-39s. 6d.

The accounts of the Cape Town Company for the year 1928 have been received, and show satisfactory results. The sales of gas have increased by 8·7 p.ct.; and the Directors are recommending a final dividend on the ordinary shares of 8 p.ct. per annum, making 7 p.ct. for the year—a rate of dividend which has been paid since 1921.

The following transactions were recorded during the week:

MONDAY.—Barnet 7 p.ct. 114½, Bournemouth "B" 12⅝, British 117¼, 5 p.ct. deb. 95½, 96, Cape Town and District 4½ p.ct. pref. 6⅞, Colonial 26s. 6d., Continental Union 129, 129½, 130, 130⅜, 130½, 131, 7 p.ct. pref. 128, European 17½, Gas Light and Coke 18s. 10½d., 19s., 19s. 1½d., 19s. 3d., 3½ p.ct. max. 63½, 63¾, 4 p.ct. pref. 75¾, 76, 76¾, Imperial Continental 435, 436, 437, 437½, 440, 441, Primitiva 34s. 3d., 34s. 6d., 34s. 7½d., 34s. 9d., 34s. 10½d., 35s., 35s. 1½d., 35s. 3d., Sheffield 109¼, South Metropolitan 104¼, 104½, 105, Southampton 5 p.ct. 78½, Tuscan 37s. 6d., 40s., 42s. 6d. Supplementary prices, Croydon 5 p.ct. deb. (interest from April 30, 1929) 98, Harrogate new 168, Montevideo 6 p.ct. deb. 100.

TUESDAY.—Alliance and Dublin 97½, 98, 98¼, Barnet 7 p.ct. 115½, Bristol 5 p.ct. 90½, British 117½, 118½, 5 p.ct. deb. 95½, 96, Continental Union 130, 130⅜, 131, European 16½, 17, 17¼, Gas Light and Coke 18s. 10½d., 19s. 1½d., 19s. 2¼d., 3½ p.ct. 63½, 64¼, 4 p.ct. pref. 76¾, 3 p.ct. deb. 59¾, 60¼, 5 p.ct. deb. 99½, Imperial Continental 432, 433, 435, 440, 440½, 441, 442, 443, 445, 449, 450, 452, 455, Portsmouth 4 p.ct. 117, Primitiva 34s. 3d., 34s. 6d., 34s. 9d., 34s. 10½d., 35s., 35s. 1½d., 4 p.ct. con. deb. 79½, South Metropolitan 104, 104½, 104¾, 6 p.ct. pref. 108, 108½, 109½, Southampton 5 p.ct. 79½, Wandsworth, Epsom 5 p.ct., stock 129, 5 p.ct. pref. 91. Supplementary prices, Gas Light and Coke 7½ p.ct., Ilford deb. 101½, 102, Kingston 105½, Yorktown new 5 p.ct. pref. 92½.

WEDNESDAY.—Brighton and Hove 5 p.ct. 100½, British 5 p.ct. deb. 96, Cardiff 7½ p.ct. deb. 102½, Colonial 8 p.ct. pref. 22s., Continental Union 129½, 130⅜, 131, 7 p.ct. pref. 129, European 16¾, 17, Gas Light and Coke 18s. 10½d., 19s., 19s. 1¼d., 19s. 2¼d., 3½ p.ct. 64½, 4 p.ct. pref. 76¾, 3 p.ct. deb. 60¼, 5 p.ct. deb. 100¼, Imperial Continental 445, 447, 448, 450, 451, 452, 453, 454, Primitiva 34s. 3d., 34s. 6d., 34s. 8¼d., 34s. 9d., 34s. 10½d., South Metropolitan 104¼, 6 p.ct. pref. 110, Swansea 7 p.ct. pref. 102, Wandsworth "C" 104, 107. Supplementary prices, Associated Gas and Electric "A" 60, Yorktown (Camberley) and District new 5 p.ct. pref. 92½.

THURSDAY.—Bombay 20s. 10½d., 21s. *ex* div., British 5 p.ct. deb. 96, Cape Town and District 4½ p.ct. pref. 6⅞, 4½ p.ct. deb. 76½, Continental Union 129, 130, 130¾, 131 *ex* div., 7 p.ct. pref. 124, 126 *ex* div., Croydon sliding-scale 113, European 16⅝, Gas Light and Coke 19s., 19s. 2¼d., 19s. 3d., 3½ p.ct. max. 64, 5 p.ct. deb. 102, Imperial Continental 447, 448, 450, 451, 452, 453, Oriental 118, Primitiva 34s. 7½d., 34s. 9d., 35s., 35s. 1½d., 35s. 3d., 35s. 6d., 35s. 7½d., 35s. 9d., 35s. 10½d., South Metropolitan 104¼, 6 p.ct. pref. 109½, 3 p.ct. deb. 59⅜, 59⅝. Supplementary prices, Associated Gas and Electric "A" 58⅞, Croydon 7½ p.ct. pref. 102, 102⅞, Eastbourne 3½ p.ct. "B" 105, Yorktown new 7 p.ct. pref. 92½.

FRIDAY.—British 5 p.ct. deb. 96, Commercial 98, Continental Union 129½, 130, 7 p.ct. pref. 125, 126, Croydon sliding-scale 112, European 16¼, 16½, 16¾, 17, 17¼, Gas Light and Coke 18s. 10½d., 18s. 11½d., 19s., 19s. 1½d., 19s. 3d., 3½ p.ct. 63½, 4 p.ct. pref. 76¾, Imperial Continental 447, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 463, 464½, 465, 468, 470, 473, 475, 480, Oriental 117, Primitiva 35s. 6d., 35s. 10½d., 36s., 36s. 1½d., 36s. 4½d., 36s. 6d., 36s. 9d., 37s., 37s. 3d., 37s. 6d., 37s. 9d., 37s. 10½d., 38s., 38s. 1½d., 38s. 3d., 38s. 4½d., 38s. 6d., 38s. 7½d., 38s. 9d., 39s., 39s. 1½d., 39s. 2½d., 39s. 3d., 39s. 6d., South Metropolitan 103¾, 104, 104¼, 104¾, 105, 105½, 3 p.ct. deb. 59, South Suburban 5 p.ct. 108½. Supplementary prices, Associated Gas and Electric "A" 58, Croydon 5 p.ct. deb. 95.

In the Money Market there was plenty of available credit. For renewal of old loans, however, 4½ p.ct. was demanded—new money being obtainable at 4 p.ct. Discount quotations remained firm, which was doubtless due to the higher average rate at which Treasury Bills were allotted. This was £5 2s. 1·3d. p.ct., or 1s. 4·23d. p.ct. above the previous week's rate.

On the Foreign Exchange Market, Sterling on New York was depressed, the rate closing at 4.85⅞. French francs depreciated to 124.22½; German marks to 20.46½; Dutch florins to 12.06¾; and Italian lire to 92.63. Belgas hardened at 34.94½.

Silver was a firm market, and the price rose to 25⅜d. per oz.; but Gold remained at 84s. 11½d. per oz.

The Bank Rate is 5½ p.ct., to which it was raised from 4½ p.ct. on Feb. 7. The Banks' deposit rate is 3½ p.ct., and the deposit rates of the Discount Houses are 3½ p.ct. at call and 3¾ p.ct. at notice.

North of England Gas Managers' Association.—The annual general meeting of the Association will be held at 2.15 p.m. on Friday, May 24, in the small Conference Hall of the North-East Coast Exhibition, Newcastle-on-Tyne. Mr. Dugald Currie will preside, and there will be an address by Mr. T. Hardie, Chief Engineer to the Gas Light and Coke Company, and a paper by Mr. S. R. Bradshaw, of West Hartlepool, on "Corrosion and Deterioration of Mains."

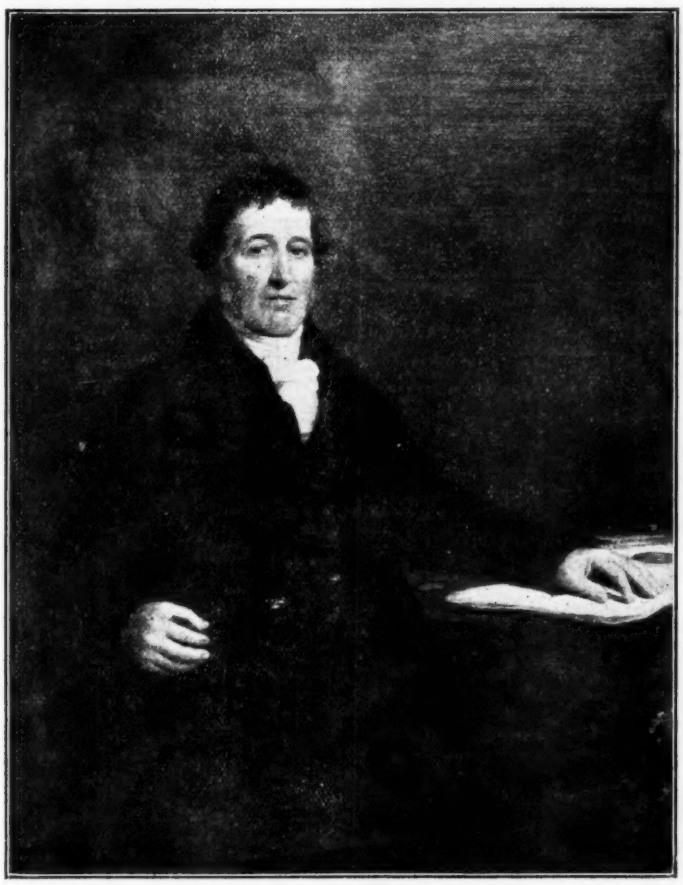
AN OBSCURED SCOTTISH GENIUS.

WILLIAM MURDOCH: Born Aug. 25, 1754; died Nov. 15, 1839.

By R. BARCLAY MURDOCH.

[In our issue for April 3 we reprinted the correspondence recently published in "Engineering" which suggested that some co-ordinated effort should be made to rescue from comparative oblivion the name and achievements of that great engineering genius William Murdoch. Our notice of the matter has evoked from one of the correspondents the following interesting article.—Ed. "G.J."]

If to possess powers to perceive great ideals for the welfare of mankind, to pursue those ideals with determination, skill, and perseverance, whether or not they result in personal gain, be genius, then, without question, William Murdoch, born of purely Scottish descent, in the parish of Auchinleck, Ayrshire, in 1754, was a genius of rare ability and character—one who will yet be recognized as of far greater value in the progress of civilization than many who have received much more recognition.



From a portrait painted by John Graham Gilbert, R.S.A.

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Whether or not William inherited his gifts from his supposed remote ancestors—John Murdoch, architect and master-mason of Glasgow Cathedral, Paisley Abbey, and Melrose Abbey (where his bones are deposited), on his paternal side; and King Robert Bruce on the side of his mother, who was a Bruce of the King's lineage—there is no doubt of William Murdoch's having inherited something from his father, John Murdoch, who, besides cultivating the lands in the valley of the Lugar—lands on which now stand the pretty little mining village of that name, and the ironworks above it—was a miller, and kilned and ground the oats of the district in the mill adjacent to the small house in which he lived and in which his family were born. The mill was driven by the waters of a rushing, gushing little burn that tumbled tumultuously into the Lugar in the ravine just below the house; and the house and mill are known by the name of the little Burn Bello Mill. John was a millwright, or mechanic, for not only could he repair mill machinery, but he could erect new mills, and he was the first known to use iron cog or toothed wheels instead of wooden ones.

The children having to go three miles over the hill to the school at Auchinleck, John Murdoch constructed a small three-wheeled carriage, which the boys propelled by operating with their hands a lever on each side. These levers worked the two rear driving-wheels. This was, doubtless, the embryo of William's subsequent steam carriage.

William soon displayed evidence of his own capacity for construction and invention, for when about 20 years of age he built over the River Nith, not far from Old Cumnock, and where the Nith is not much more than a burn, a stone bridge that stands to this day. And his powers of invention were shown by adapting to the turning-lathe a contrivance which enabled him to produce not merely cylindrical, but also oval articles—an achievement that marked a great advance in the production of improved mechanical tools, upon which the present perfection of machinery depends. The invention was of greater importance to him than he was at the time aware, for it proved to be the "Open Sesame" of his whole future career. How many varieties of article he manufactured at home with his "oval-chuck"—as it is termed—we do not know, but he made one that was of the utmost importance to many others besides himself—a wooden hat!

In 1777, when he was twenty-three years of age, William, finding but little opportunity for the exercise and development of his talents—for engineering was but in its infancy in Scot-

land—and hearing much of the enterprise of Boulton & Watt at the Soho Works, Birmingham, he—not having the means to afford to travel by the stage coach or on horseback—set off from home and walked thither. On arriving at Soho he had an interview with Matthew Boulton; James Watt being in Cornwall. However, as they were not busy, and Boulton knew that Watt had a strong prejudice against employing his fellow countrymen, he told William there was no opening for him. This so disconcerted the young fellow that, as he was holding his hat in his hand, he let it fall, and the sound it produced attracted Boulton's attention; and he asked of what material it was made. William replied, "Timmer, sir." Boulton then desired to know how he had made it on a lathe which would turn materials cylindrically only. William told him he "jist garred it (the lathe) gang the gait I wantit it." Recognizing that this tall, strong, and good-looking young Scot had uncommon ability, Boulton gave him immediate employment; and it was only two years before his services became recognized as most valuable. He was sent to Cornwall to superintend the

Bello-Mill Farmhouse, Lugar, Ayrshire.

Murdoch's birthplace marked by a tablet and medallion portrait erected by the Gas Managers of Scotland.

erection and maintenance of the pumping engines which the firm were supplying to the tin and copper mines there.

William Murdoch soon afterwards married a Cornish young woman, and took up his residence in a small house in Cross Street, Redruth—a house noteworthy, first, as having been erected on the site of part of the materials of an ancient wayside chapel used by pilgrims to and from the famous shrines at Mara-Zion, and dedicated to St. Merodac (thought by some to be another form of the name of Murdoch); but secondly, and of far more consequence, as the birthplace of steam locomotion and gas lighting.

This little house, which through the carelessness of a tenant was destroyed by fire a few years ago, was the first in the world to be illuminated by coal gas; and the one in which was born the parent of all mechanical appliances for transport of men and materials. Though many others attempted to produce an engine that would propel itself along the ground, that made at Redruth by William Murdoch, and now preserved in the South Kensington Museum, is, without question, the only one, till then, truly successful and satisfactory.

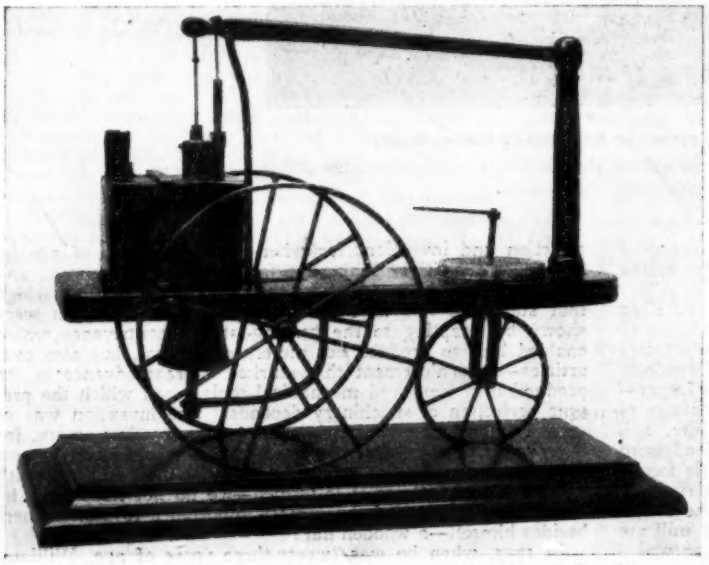
These two inventions are alone sufficient to place our hero

The Redruth House.

in the forefront of benefactors of mankind; but he gave other proofs, for the list of his inventions and contrivances would fill a page of the "Journal." A few may serve to indicate the

Sycamore Hill House, Handsworth, where Murdoch died.

breadth and scope of his genius: The slide-valve, a contrivance to supersede the use of a large number of complicated taps and levers for the admission of steam to the cylinder of a steam engine; the oscillating cylinder, which simplified the construction of marine engines; the rotary engine, the precursor of the turbine; the "Sun and Planet Motion," a device to obviate the crank; aniline dyes from coal-tar; isinglass from fish-skins; and pneumatic pumps.



MURDOCH'S LOCOMOTIVE.

William Murdoch was a most faithful and devoted servant to his employers, working assiduously and arduously day and night. However, they showed little appreciation, for not only were they niggardly in the salary they gave him, which rose from 17s. per week when he went to Cornwall in 1779, to only £100 per year when he left their service in 1798, but they did everything they could to hinder and prevent his pursuing and developing his discoveries, except when they were those in connection with which James Watt specially wanted to promote his own ideas—such, for instance, as the invention of something as a substitute for the use of the crank, which, strangely, had been patented by another man to prevent its being applied to the steam engine. Not only this, but Watt persistently and peremptorily prevented Murdoch patenting any of his inventions; thus robbing him of the just reward of his skill and industry, and permitting others to reap the benefit of them. Watt was most tyrannical and unreasonable in his treatment of Murdoch.

As an instance of James Watt's crass stupidity—there is no other name for it—there is preserved a letter written by him to Matthew

Boulton which insists that William Murdoch desist from hunting the will-o'-the-wisp of making a steam engine propel itself along the ground, "for after many years experimenting he was convinced the Almighty would have to work a miracle before it could be accomplished." When Boulton told him he had actually seen it accomplished Watt was so angry that he said that Murdoch on no account must be allowed to patent it. There is now good reason to believe that it was Prof. John Robinson who suggested to Watt the improvement in Newcomen's engine that has given Watt his fame as the inventor of the steam engine.

At last the matter became so sickening and discouraging that Murdoch decided to quit. He had, however, so won the esteem and respect of the mine owners and captains in Cornwall that they offered him a salary of £500 if he would remain and work for them; but he felt he could not compete against his old employers, so he returned to Scotland, and started a small engineering shop at Old Cumnock, two miles from the place of his birth. Very quickly the firm of Boulton & Watt realized the extent of their loss, and they begged him to return to their employment, not in Cornwall, but as Manager of the Soho Works at a salary of £1000 a year. This he did, and remained in that capacity till his death in 1839; both Boulton and Watt having predeceased him, Boulton in 1809, and Watt in 1819.

Memorials of great soldiers are extremely numerous, but those of heroes of industry extremely few. Murdoch has none!

Subsequent to the foregoing being written, fresh light has been thrown upon an incident in William Murdoch's life with which the writer was acquainted, but of which he did not appreciate the significance. In 1786 Murdoch, when working in London, was staying in rather genteel lodgings. One morning his landlady was horrified on entering his sitting-room to find a large number of fish skins hung round the walls. This was too much for her; and she ordered him to remove instantly elsewhere, which, of course, he did.

It now appears that Murdoch was erecting a pumping engine for his employers in the brewery of Messrs. Barclay Perkin & Co. in the Borough of Southwark. Up till then they had pumped the water they had required from a well on their own premises; the pumps being worked by horses travelling round and round on a circular platform. This was now to be superseded by a steam engine. While Murdoch was erecting it, the manager explained to him they had great difficulty in making the beer clear and bright, and he asked Murdoch if he could suggest anything. Murdoch replied that he thought he could. He went to Billingsgate, bought a quantity of fish skins, and from them manufactured isinglass, which he took to the brewery. It proved a splendid success, and has been used ever since. The manager next asked him if he could tell him how many horses were equivalent to the power of his engine. Strange to say, there is no evidence that such a formula had previously been thought of; but Murdoch set to work to ascertain just how much work the brewery horses actually did in pumping. He then calculated the size of the boiler, the pressure of steam, and the other data necessary to find out what size of engine would be required to do an equivalent amount of work, and thus he obtained the formula necessary for the now universally adopted "horse-power" of engines of any kind. In this alone, if in no other thing, he proved himself a true genius, to whom the engineering world is much indebted. In fact, the more the truth is known about this man, the more his superiority in ingenuity becomes apparent.

It is with much satisfaction the writer is now able to report that the old house at Redruth has been purchased and restored by a public-spirited citizen of that town, Mr. Arthur Pearse Jenkins, and is now being used as a place of meeting. It is satisfactory also to learn that the ancient walls of the old chapel are in splendid preservation, and that the gas industry has again recognized Murdoch's claim to recognition by identifying itself with this work of restoration. Will engineers now do something, for William Murdoch did far more valuable work for mechanics and engineering than he did for gas lighting?

The house at Soho, Birmingham, in which William Murdoch resided most of the time after his return there, is still standing, and is in very good preservation, for Messrs. W. & T. Avery, Ltd., the present proprietors of the works, take an interest in it. It has a brass plate on its front, bearing an inscription relating to its original occupant. The other house, "Sycamore Hill," in which Murdoch spent his later years and died, and which is in Handsworth, has just (April, 1929) been demolished. It was a fine, large house, and would have made a good building for an institute dedicated to his memory. It had nearly an acre of land surrounding it.

NATIONAL GAS COUNCIL—SCOTTISH DISTRICT.

The Tenth Annual Meeting was held in the Central Station Hotel, Glasgow, on Thursday, April 25.

Annual Report.

Membership.

Company Undertakings, 76 (last year 75); Corporations, 42 (last year 42).

Scheme for Sale of Tar and Ammoniacal Liquor to Distillers.

The scheme continues in successful operation. The second period of five years of the scheme expires at April 30. It is intended that the proposed Co-operative Tar Scheme now in progress of negotiation will take its place, but, pending agreement with the Distillers, it has been arranged to continue the scheme for May and June.

The monthly awards by the Arbiter are as follows:

—	Tar. Per 100 Galls.	Liquor 4° Tw.). Per 100 Galls.
	s. d.	d.
1928—		
April	29 6	7·375
May	29 2½	7·375
June	27 10½	7·375
July	26 7½	7·375
August	23 6	7·375
September	22 7½	7·375
October	19 10	7·375
November	19 3	7·375
December	18 11½	7·375
1929—		
January	16 2½	7·375
February	14 10½	7·375
March	13 11	7·375
	s. d.	s. d.
Average for 1924-25	23 0	2 9·1
,, ,, 1925-26	23 10	1 9
,, ,, 1926-27	42 9·08	1 6·75
,, ,, 1927-28	36 4·44	1 1·33
,, ,, 1928-29	21 10·375	0 7·375

At a representative meeting of Tar Producers and Distillers held in London on May 17, the present unfavourable position of prices of tar and tar products was discussed. A Special Committee representing both parties has been set up for the purpose of investigating the situation.

Gas Regulation Act.

Orders granted in Scotland to Dec. 31, 1928—32, Corporations 28, Companies 4. The number is the same as for 1927. The gas undertakings coming within the provisions of the Act number 69. The number who have not yet adopted the Act is equal to fully 53 p.ct. Included in this number, the works producing under 20 million c.ft. per annum equal 22 p.ct. In the Bill now before Parliament, it is set forth (section 5) that any undertakers who in any year subsequent to the year 1927 supplied more than 20 million c.ft. of gas, shall, in respect of gas supplied by them on or after the appointed day, charge therefor according to the number of B.Th.U.'s supplied. The appointed day shall, as respects any undertakers who, in the year 1928, have supplied more than 20 million c.ft. of gas, be such day not later than the first day of April, 1930, and, as respects any other undertakers, the first day of January in the second year after the year in which they first supplied more than 20 million c.ft. of gas. The clause will, of course, should the Bill pass, apply only to undertakers within the meaning of the Gas Regulation Act, 1920—namely, corporations and statutory companies. Private companies are not concerned.

Public Utility Undertakings in Scotland—Valuation for Assessment.

This important matter affecting gas-works has been kept constantly in view, and efforts have been made to promote new legislation, but no definite step towards getting a Bill has resulted. The subject has received the attention of the Scottish Office, but the information received is to the effect that it is not possible meantime to act in view of the Parliamentary situation.

New Gas Legislation.

So far as Scotland is particularly concerned, the Second Report of the National Fuel and Power Committee is unanimous

that the Electric Lighting (Scotland) Act, 1890, should be altered, and that steps be taken to prevent losses incurred on an electricity undertaking becoming a burden on gas consumers. Also, that the suggestion should be adopted whereby the defect arising out of the inappropriate wording of section 44 of the Local Government (Scotland) Act, 1894, should be remedied in order to enable county councils, as distinct from district committees of a county council, to adopt the Burghs Gas Supply (Scotland) Acts, and to establish gas undertakings within a county area in Scotland. Every endeavour was made by the Central Executive Board and the officers of the National Gas Council to have an amending clause inserted in the Bill to be introduced. The Director of Gas Administration, Board of Trade, in a letter received stated "that while the Board of Trade fully appreciate the desirability of the amendment of the Electric Lighting (Scotland) Act, 1890, from the point of view of gas undertakings, they regret that they are unable to embody an amendment of this nature in the Bill about to be introduced."

Gas Undertakings—Profit on Public Supplies—Deduction for Income-Tax.

(*Note.*—This subject applies to Corporation Gas Departments only.)

It has been learned that inspectors of taxes are no longer agreed to allow as a deduction the profit realized from gas sold for public lighting in determining the valuation for income-tax, a practice which has been general in the past. The Revenue Department states "that the price paid for public lighting comes out of another separate 'fund,' and the assumed profit should not, therefore, be excluded in arriving at the assessable profit of the gas undertaking, and that similar considerations only apply to supplies to other departments of a corporation; and that the assumed profit has been incorrectly dealt with for income-tax purposes; the gas undertaking in a normal case is a separate 'fund.'" As the element of doubt exists, and rather than take a case before the Special Commissioners with a view to getting a definite finding, it has been thought wise that as a preliminary step the opinion of Counsel should be taken on the point. Accordingly, a memorial has been prepared, Counsel being asked to advise:

(1) As to whether or not in his opinion the Inland Revenue Authorities are entitled to discontinue the allowance in respect of profits on public lighting hitherto accorded.

(2) If entitled to do so, whether or not they are entitled to re-open the assessments for the past five years with a view to re-adjustment, such assessments having been settled after disclosures of all material facts.

(3) Generally.

In view of the position as outlined, gas undertakings are advised to delay coming to a decision relating to this particular matter.

Hydro Electric Power Scheme in Scotland—Concession in Valuation for Assessment.

By section 23 of the Grampian Electricity Supply Act, 1924, it was provided that, notwithstanding anything contained in the Lands Valuation Scotland, 1854, and Acts amending and extending the same, the Company should be entitled to a deduction from its gross income equivalent to 5 p.ct. on the total sum at the time expended by the Company in respect of the appropriation, storing, collecting, abstracting, diverting, &c., of water for the purpose of producing power; and this included buildings and land used by the Company in connection with that purpose. It was provided that the concession should apply for a period of five years from the date at which the said lands, &c., became assessable to local rates. The Company is now promoting a Bill in which it is proposed to substitute 7 p.ct. for 5 p.ct. allowed by the 1924 Act, and which will have the effect of extending the duration of the concession for another five years. The exceptional treatment accorded to the Company by the 1924 Act was granted with a view to the placing of the Company, which was to generate electricity by water power, in a position as regards valuation not less favourable than a Company generating electricity by steam as motive power, the argument being that, in the absence of an item for coal on the expenditure side, they would be unfairly placed in comparison with undertakings using coal. This concession was granted by Parliament after very strenuous opposition on the part of a number of local authorities. Consideration has been given whether an objection could be lodged by gas undertakings affected, but conclusion has been reached that even if such an objection were made it could only be made as to the "quantum" of the percentage, and it is doubtful if a gas undertaking would be regarded as having sufficient "interest" to sustain such an objection. There is no doubt that hardship might ensue to gas companies if the percentage deduction allowed in the case of the Hydro Electric Company to meet the special circumstances were made too high; but it can be assured that the opposition of the Rating Authorities will be sufficient to prevent any unwarranted increase.

Proposed Co-operative Tar Scheme.

The scheme in practice for the past ten years for the disposal of tar and liquor to distillers terminates at April 30, 1929. With the view of combining the interests of tar producers and distillers, negotiations have been proceeding for some months past, and agreement has almost been reached. In outline the new proposals are as follows: The Scheme will be on almost exactly similar lines to the Co-Operative and Profit Sharing Schemes which have been worked in England for a number of years. Certain of the tar distillers in Scotland will group themselves together. A Joint Committee will then be formed consisting of representatives of the gas undertakings and of the distillers. Each gas undertaking which joins the Scheme will, in the first place, be paid a minimum price month by month for the tar delivered to distillers. At the end of each six monthly period, the distillers' accounts will be made up, and after deducting costs of manufacture and other charges, the profit balance will be divided between the distillers and the gas undertakings in a proportion on a sliding-scale which increases to the advantage of the gas undertakings as the profits are higher.

Full Control by Gas Undertakings.

The foregoing Scheme is recommended on the ground that it gives to the gas undertakings a full control, not only of the sale of their tar, but of the distillation, manufacture, and sale of tar products. The gas undertakings, through their representatives, will have the whole of the facts and figures of the tar distillation business under their own supervision. The Committee are of opinion that the Scheme has been determined on sound commercial lines, and that the result will be to give to gas undertakings an improved return for tar.

British Road Tar Association—Scottish Tar Board.

At a meeting of representatives of gas undertakings, coke oven tar producers, and tar distillers held on Oct. 25, 1928, it was unanimously resolved to form a Tar Board for Scotland under the Constitution and Rules of the British Road Tar Association. Mr. Francis Tudsbery, of Messrs. James Ross & Co., Falkirk, is Chairman, and Mr. J. W. McLusky, General Manager, Glasgow Gas Department, is Vice-Chairman, with an Executive Committee having six representatives from gas undertakings and four representatives from distillers. It is felt necessary that the interests of gas undertakings as tar producers should be upheld in the use of tar for roads, and especially in view of competition from other materials. The object of the Association is to encourage and develop the use of tar products for road and other purposes, and to organize and finance publicity and propaganda, also to undertake research and experimental work in the use of tar for roads. It is satisfactory to report that all the large corporation and company undertakings are subscribers, and that practically all the gas works in the membership of the existing Tar Scheme are also subscribers. The subscription is on the basis of 2d. per ton of tar sold.

Scottish Education Scheme.

The Scheme is under the direction of the North British Association of Gas Managers. Subscriptions received from gas undertakings through the National Gas Council amounted to about £300 for the past year. Grants of suitable amounts have been made to the Royal Technical College, Glasgow, the Heriot-Watt College, Edinburgh, and the Dundee Technical College.

Quality of Coal.

It has been reported that serious loss is sustained by a large number of gas-works due to the quality of nuts now being supplied from various collieries. The complaint is that the size of nut has been altered, being reduced in size, treble nuts being largely double nut size, and that double nuts contained a large percentage of singles. This has been definitely proved as the result of examination made of a large number of different nuts supplied to gas-works during the past six months. With a view to remedying the trouble, and having standard sizes of nuts recognized by collieries, the matter has been taken up with the Association of Coal Owners of Scotland.

General.

During the past year many important matters affecting the gas industry have been dealt with by the Central Executive Board in London, and are referred to in the monthly reports circulated to all members.

The Secretary has received by correspondence throughout the year many inquiries for information on a variety of subjects. Members desiring information on any subject are invited to communicate with the Management Committee through the Secretary.

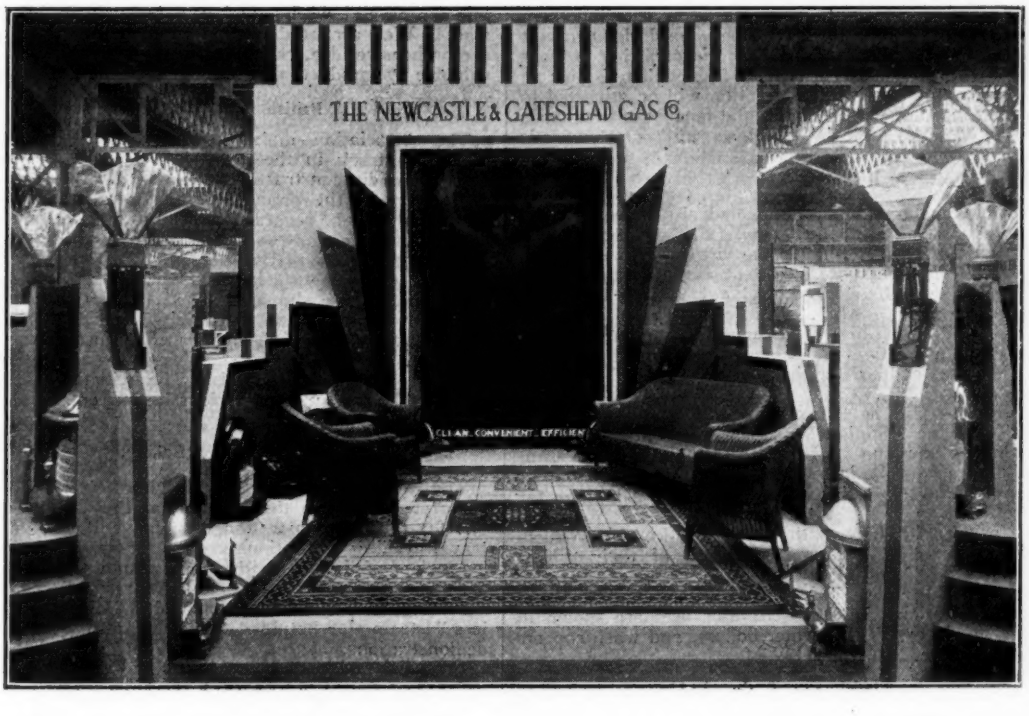
NORTH-EAST COAST EXHIBITION.

Newcastle-upon-Tyne, May-October, 1929.

A truly magnificent effort in salesmanship was crowned yesterday when H.R.H. the Prince of Wales formally opened the Exhibition in Newcastle. Under the patronage of H.M. the King, a show has been built up which, as regards size, ranks second only to the Wembley Exhibition.

Surprise was expressed on all sides on the part of those who saw the Exhibition for the first time—surprise at the scale of the undertaking, and at the beauty of the architecture and the generally artistic lay-out. As is well known, the North-East Coast has been through extremely hard times in recent years; but signs are not wanting at the present time of the beginnings of a revival in the heavy industries upon which the district is dependent, and it is to be hoped that prosperity is to return to the trades in the area which in the past have meant so much to the whole country. The present effort is a really wonderful one on the part of a very hard-hit district to help itself; and it is truly worthy of any support that the rest of the country can give. But quite apart from any sentiment of this kind, there is a vast amount of material that really is worth seeing.

An area of one hundred acres of the Town Moor—a large open space in the city—has been converted into a city of palaces, gardens, and pleasure grounds; among the chief features being two huge buildings devoted to Engineering and Industries. A guarantee fund of £165,000 was raised, and the cost of the Exhibition is estimated at £250,000.



THE GAS SECTION.

An opportunity such as this was not likely to be missed by the enterprising management of the Newcastle-upon-Tyne and Gateshead Gas Company, and something really good was to be expected. But apart from their own exhibits, the thanks of the industry are due to them as the moving spirit in the formation of a distinct and very distinctive "gas corner" in the Palace of Industries. Several well-known firms have collaborated in the scheme; and the stands, ten in number and all adjacent, are not only a complete departure from the ordinary type, but have a uniform colour scheme of decoration in red, black, and buff. The individual displays are sufficiently attractive in themselves; but the propaganda value to the industry is immensely enhanced by the artistic manner in which the exhibits of the several firms are blended into a very striking whole.

The Newcastle Gas Company.

The local Gas Company, now embracing practically the whole of "Tyneside," are expert showmen at all times, and they have laid out their space to great advantage. Part of it is fitted as a lounge, with easy chairs and carpet to harmonize with the colour scheme, and one can imagine many an appointment being made "at the Gas Company." But the whole of the stand somehow conveys the comfort, the tidiness, and the restfulness of gas. A bathroom, simple yet luxurious, demonstrates gas service in that important department of the household; gas cookers of all types; a gas fire with glass flue to illustrate, by ribbons fluttering within it, the ventilating effect; all these are displayed in a style which cannot fail to impress those who have to look forward, after that most fatiguing exercise of seeing an exhibition, to lighting-up the coal fires at home. For those who insist on the open grate and the traditional glowing embers, there is a coke fire burning fiercely and without smoke—burning so well that it does not appear likely to give an opportunity of demonstrating the gas-burner attachment for kindling. For those, again, who boast of their attachment to the open fire, but who would, all the same, dearly like a bit of warmth for half-an-hour in spring and autumn evenings, there is a fireplace to burn coal or coke when desired, but which cunningly conceals, under an easily removable metal cover, a highly efficient gas fire for alternative use.

Another stand of the Gas Company is fitted as a model kitchen, where all modern devices for cooking, washing, and the drying and ironing of clothes are shown. There is also a gas-operated refrigerator. Here free cookery demonstrations are to be given twice daily, seating accommodation being arranged for 50 persons.

The Parkinson Stove Company, Ltd.

A most attractive and well arranged display by this firm illustrates the wide range of cookers, geysers, water heaters, and gas fires produced at their Stetchford factory. The "New Suburbia"—the cooker with the top and bottom flue outlets—is an outstanding feature. Attention must inevitably be drawn

to it by the really beautiful artistic colour enamels in which it is shown, quite apart from the usual grey mottle finishes. The examples in turquoise blue and white and cinnamon brown and white mottle all-enamelled finishes are something quite out of the ordinary, and extremely pleasing.

The firm live up to their reputation as the original makers and patentees of geysers with a prominent show of "Treasure" geysers and water heaters. The outstanding feature is the new "Chromite" geyser with an entirely porcelain white enamelled finish; the machine being especially designed with perfectly smooth exterior for the purpose. The fittings are chromium-plated, and the whole is a truly labour-saving appliance.

The very effective chromium-plated finish is exemplified again among the range of "Talbot" gas-fires; a prominent example being one displayed in an artistic fireplace, with glazed tile surround in black veined with silver. The "Cosie" inset fire in chromium-plated finish and the "Conrad" and "Meyrick" fires in silver and bronze finishes are old friends which complete the display. All these are fitted with the firm's own "Sunray" radiant.

R. & A. Main, Ltd.

This exhibit is designed to show the latest advances in gas cooking and heating appliances. It includes a good range of fully enamelled cookers fitted with the most modern devices for saving labour and insuring perfect cooking results. Prominent are, of course, the firm's well-known "Mainamel" and "Mainservor" cookers.

Gas-fires are particularly well displayed on this stand, and the most is made of space without crowding by showing them on the four sides of square pillars. There are designs to suit every taste and every scheme, for building-in or fitting in front of existing coal grates, as well as inset fires which require no fitting or building-in. Particular attention will be attracted to the "Baronial" series, with canopies and fenders of art metals and frames of cast-iron; and the "Mainscreen" portable fire is neat and handy.

Radiation Ltd.

This firm have a large main stand, and also a separate exhibit of the Davis Gas Stove Company, Ltd. A special effort is made to impress upon the public the virtues claimed for the "Thermo-XX Beam" radiant, and attention is attracted on each side of the main stand by a large black velvet circle having at its centre a complete gas-fire, with innumerable "Beam" radiants radiating from this centre to the circumference. An attempt is made to capture the public imagination by quoting the curative virtues claimed for the new rays for such ailments as "tennis elbow."

Demonstrations will be a feature of this exhibit as of all the others, and the "Sunhot" storage hot water heater is as convincing as anything can be with its very small heating flames, which impress the idea of economy. Less than 6d. for 50 gallons of hot water a day is the claim of the makers for this apparatus.

There is a splendid show of the other well-known products of this firm, including an imposing array of their "New World" "Regulo"-controlled cookers and ranges, in grey mottled enamel and white. These again are an admirable subject for demonstration. Injector-ventilator fires are shown in good variety, and geysers, hot-water boilers, and wash coppers complete the picture.

Falk, Stadelmann, & Co., Ltd.

A display of gas-burners in itself is little calculated to attract the public to an exhibition stand; but this firm has solved the problem by clothing gas-burners in many new guises. Much experimenting has been necessary to obtain burner proportions which can be used with safety with the really beautiful art glass which is shown; and the results are some highly artistic lighting effects of the semi-indirect type in most pleasing colours. Wall lights, as well as pendants, can be had to fit into any decorative scheme. There are shown, of course, a full range of the firm's well-known utility burners for general use, as well as "Bakerloo" cookers and "Silo" gas-fires. The stand, as a whole, is a credit to the lighting side of the industry.

The Forth and Clyde and Sunnyside Iron Company, Ltd.

In addition to a section devoted to coal ranges, grates, and baths, this firm justifies its inclusion in the gas group by an attractive display of their gas cooking and heating appliances. There is a comprehensive selection of their "Gasecon," "Gasecon Easyreach," and "Regulus" cookers, in porcelain enamelled and ordinary finishes.

The "Silent Knight" gas-fire is a feature meriting special attention; the "Valiant Knight" and other patterns being also shown. "White Knight" and "Meteor" gas boilers complete an attractive display.

Sidney Flavel & Co., Ltd.

Founded in the reign of King George III., this firm has progressed with the times, and some very efficient gas apparatus is shown. The "Flavel" cooker, in a splendid range of sizes and finishes, with thermostatic oven control and patented efficiency burner, is specially designed for simplicity of cleaning and maintenance. The "Metro" log gas-fire is shown burning in various forms of grate, including a very effective antique dog design in stone surround. A speciality is the "Metro" coke fire, with all the psychological appeal of the open fire, yet clean and smokeless. The latter feature is interestingly shown by having part of a flue constructed of glass. Gas-burners are provided for simplicity of lighting the coke.

The National Benzole Company, Ltd.

In the words of the official catalogue, "a very large percentage of the British Benzole used in 'National Benzole Mixture' is obtained from the collieries, coke-ovens, tar distilleries, and gas companies in the North-East Section of England." And the exhibit of the firm is a valuable addition to the gas industry section. The well-known packages and kerb-side pumps are featured; and an interesting working model indicates the anti-knocking properties of "National Benzole Mixture" as compared with other motor spirits.

The "B.C.G.A."

Successfully endeavours, in a striking and attractive manner, to summarize the services of gas in relation to public health and hygiene, and in the conservation of the source of the Nation's wealth—Coal. The exhibit embodies a beautiful colour scheme, the background of which is a panoramic view of Newcastle from the south side of the river—a view such as the locals say is obtainable only when the mines have been idle for several weeks, and coal is unobtainable in the raw state! Well arranged display windows on either side give a comprehensive idea, calculated to impress the lay mind, of the valuable bye-products which are rescued by the gas industry.

British Road Tar Association.

The Association make their appeal by the modern note which is struck in the general design and lay-out of their stand. Solidly constructed, it conveys to the visitor a feeling of security in the product for which it stands—British tar. The stand may be regarded as an information bureau at which all interested can have an opportunity of discussing questions concerning the use of tar and its application for road-making. Samples of road tar, in accordance with the Association's specifications, are shown. The Association's tar viscosity demonstration apparatus is exhibited, which at a glance gives an indication of the desirable properties in tar for road-making purposes. There are also samples of tar and aggregates used in the construction of roads. The scientific aspect has not been overlooked, and the various instruments used in the testing of tar are on view.

Gas in a Bakery.

The exhibit of an important local bakery, J. Crosby & Son, calls for mention in this account, as they are depending upon gas for their demonstration of a large Baker Perkins swing tray travelling confectionery oven for 32 pans. This is fired by means of James Keith & Blackman Company high-pressure gas equipment. The same firm supplies equipment for gas-firing, with thermostatic control, a Baker-Perkins "Matchless" steam-pipe hotplate, which is also giving continuous demonstrations.

Gas Company's Industrial Display.

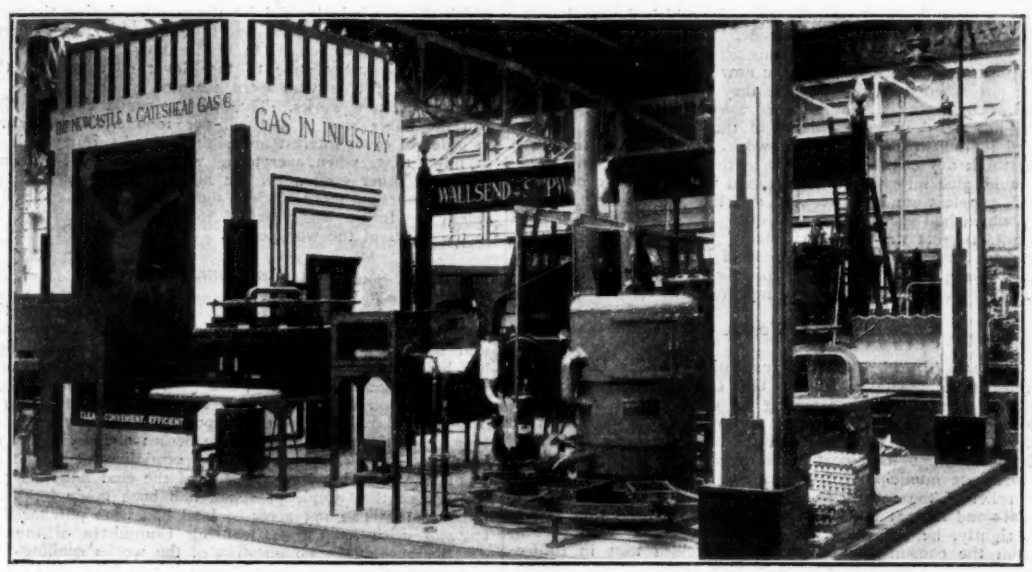
The Newcastle Gas Company have an excellent display of the industrial uses of gas in the Palace of Engineering. There are shown working a pressure die-casting machine for axle-box bearings and other intricate parts in soft metals, eliminating any machining whatever; a furnace for melting, refining, and alloying lead, tin, stereo metal, type slugs, and solder, working in conjunction with a small Armstrong-Whitworth gas engine; and a half-ton central axis tilting furnace for melting ferrous and non-ferrous metals. All these are Manometer gas-fired patents, manufactured and marketed by Sir W. G. Armstrong, Whitworth & Co., Ltd., of Newcastle.

Other interesting demonstrations are of a special pipe bending gas-fired furnace, as used in marine engine works, and a direct-coupled gas-engine and dynamo for generating electric light and power. Surface combustion is shown in two forms—a combustor burning within a tube for water heating, and as direct radiant heat for the delicate operation of firing stained glass.

It is worthy of note that a Thomas recording calorimeter, by the Cambridge Scientific Instrument Company, Ltd., is actually at work on the stand measuring the calorific value of the gas used in the exhibit.

Gas-Works Contractors.

This side of the industry is represented in the Palace of Engineering by several well-known firms. Ashmore, Benson, Pease, & Co., Ltd., are well up to date with a 33-in. hot gas valve, mechanically seating double faces, hydraulically operated for remote automatic control. This exhibit is shown in operation. They also have a model of a Klönne dry gas-



holder, which is made easy to understand by an accompanying section of the seal employed in this plant. There is also a model Foster type gas valve with "R. & P." patented balancing gear, and a good selection of photographs and drawings of modern producers and water-gas plants. Head, Wrightson, & Co., Ltd., without making a special display of gas plant, have an interesting show of models and photographs.

Messrs. Stewarts and Lloyds, Ltd., makers of genuine puddled wrought-iron tubes, exhibit a large assortment of their pipes.

The South Durham Steel and Iron Company, Ltd., show their well-known welded and riveted steel tubes, a very striking feature being a section of 47-in. bore bituminous lined, single border joint, gas-welded steel pipe, 25 ft. long, with branches with Hessian wrapping complete.

The Consett Iron Company, Ltd., with their local associations and their usual enterprise, have staged a most attractive all-round display; of special interest to gas engineers being a fine selection of the Company's high-grade refractory materials, illustrating their famous silica coke-oven and gas-retort shapes. This firm, as well as the Priestman Collieries, Ltd., and several other local companies, show excellent examples of the coke produce of the North-East Coast.

Cooking and Illumination.

Apart from the exhibits, the utility part played by gas in the exhibition constitutes something of a triumph. The official estimate is that visitors will total between four and five millions. The entire cooking arrangements and provision of hot water for these huge numbers are made with gas. Illuminations are a striking feature, and here again gas is to the fore. The whole of the amusement park is lighted by gas; there being seventeen standards, each having three 5-cluster burner lamps suspended from ornamental scroll arms. These lamps provide a total of 25,000 candle power, and the effect is magnificent. The motor park has gas illumination of 6000 candles, and another valuable feature consists in five standards around the bandstand each fitted with three 5-burner lamps of 500 candle power each. The entire lighting of one of the main cafés is carried out with ten 300-C.P., eighteen 400-C.P., sixteen 500-C.P., and four 700-C.P. lamps, all fitted with distance controls.

INAUGURATION OF THE PARTINGTON GAS-WORKS.

The following is an account of the official opening of the new works of the Manchester Gas Department at Partington. An illustrated description of the works was published in last week's "JOURNAL."

The Official Opening of the Partington Gas-Works of the Manchester Corporation took place on May 8, and was witnessed by a large number of visitors, invited by the Gas Committee. They assembled at the Town Hall and travelled in motor omnibuses to the works. There the Lord Mayor, Lieut.-Colonel G. Westcott, O.B.E., was officially welcomed by Alderman Tom Cook, the Chairman of the Gas Committee, and received from Alderman Sir William Kay, J.P., the Chairman of the Partington Works Committee, an embossed gold key with which he carried through the ceremony of opening the entrance gates of the station. He prefaced it with a few remarks expressing his appreciation of the honour.

The next two hours were spent by the visitors in an inspection of the works, under the guidance of Alderman Sir William Kay and Mr. William Newbigging, C.E., the Consulting Engineer. This concluded, the visitors gathered in the Board Room, where the Lord Mayor unveiled a tablet which recorded the official opening and set forth the names of the Lord Mayor and the members of the Gas Committee. The presentation of a bouquet of red carnations to the Lady Mayoress added brightness to the proceedings.

Motor buses transported the party back to the Town Hall, where dinner was served. Places were set for 325, and only a few seats were vacant. The LORD MAYOR presided. In addition to the speakers on the toast list, there were present the Very Rev. Hewlett Johnson, the Dean of Manchester, Mr. W. B. McLucky (President of the Manchester District Institution of Gas Engineers), Mr. C. S. Shapley (Senior Vice-President of the Institution of Gas Engineers), Mr. J. H. Sillitoe (General Manager and Secretary to the Manchester Gas Department), and Mr. J. H. Cadman (Assistant Secretary).

After the Loyal Toast had been honoured,

Capt. W. C. BACON (the Chairman of the Manchester Ship Canal Company) proposed the toast of "The Lord Mayor and Corporation." He said that the City of Manchester was a wonderful thing. It was the greatest industrial district in the Empire, an inland seaport, and a distributing centre pre-eminent for efficiency, despatch, and speed. Its administrators had shown foresight in municipal services—gas, electricity, and water—and in the provision for the needs of the citizens in matters of recreation and health; they looked beyond the present generation, and considered what would be required in the future.

The LORD MAYOR, replying to the toast, said that the men who had governed the city in the past had clear vision, a wide outlook, and were mindful of its future good government. But in those things they did not excel the 140 members of the Corporation who to-day were discharging the duties for which the citizens had chosen them. He said that with seventeen years' experience in the City Council. He had had the great honour that day of opening a works which their predecessors would not have thought was possible of accomplishment. It was an event which showed Manchester was the leading city in the greatest industrial centre of England. ["Hear, hear."] He had visited this new works on previous occasions, but that day he had been astounded by the technical work which had been done, and by the way in which the contractors had carried out their task, so expeditiously and in such a capable and complete manner. He was particularly impressed by the conditions under which the men were working. During the time he had been a member of the Council it was often his duty to visit the gas-works within the city; and a comparison of the conditions there with those existing at Partington showed that there had been great progress not

in science alone, but also in the conditions under which the employees worked both inside the building and outside. Many years ago, when engaged in social work in Hulme, he came across people who worked in the Gaythorn Gas-Works. They were now doing similar work at Partington; and when he spoke to them they expressed to him their appreciation of the beneficial change in the working conditions. Manchester had not failed to keep abreast of the times. Often it had given a lead in industry and in social work. It had done so now. He did not think any centre of industry in the country, or any Corporation, could give information that would improve the conditions under which people were now working and living in the great hive of industry which had been opened that day. Such conditions helped in the manufacture at an economic rate of what was perhaps the most important factor in the improvement of industry. If more encouragement was given to the use of gas for heating, lighting, and power, the atmosphere would be much improved.

A Splendid Works.

Mr. J. Terrace (President of the Institution of Gas Engineers) proposed the toast of "The Manchester Gas Undertaking." He said the Manchester Corporation was among the earliest Corporations to undertake municipal trading, and for a time its gas undertaking suffered from the same complaint which affected many lucrative municipal undertakings—that part of the profits was appropriated to help less fortunate municipal enterprises and make contributions towards the relief of the rates. But Manchester had always been in the forefront; and in 1921 the City Council passed a resolution which put aside, rightly, he believed, that method of dealing with profits derived from the consumption of gas, and decided that in future the gas undertaking should be run on proper business lines, profits being applied towards the reduction of the price of gas. ["Hear, hear."] It was not surprising that the increased demand for gas made it necessary to proceed with the erection of the new works at Partington. Gas was prepared to fight its own fight, and to hold its own against all comers. All that was asked was a fair field and no favour. Then, provided the undertaking was put on an ordinary business footing, it could render to the whole community the great service of a supply of good, cheap gas—a necessity of life to-day. He did not feel he was a stranger in Manchester. He had visited it on several occasions. The first time was over thirty years ago, when he was employed with a firm of contractors at the gas-works in Bradford Road. In those days Bradford Road was the new station of the Manchester Gas Department, but he understood that since then it had been extended beyond all recognition. The Corporation had had to provide another station which would carry on the good work; and as President of the Institution of Gas Engineers he wanted to congratulate the Partington Works Committee upon what had been done at Partington. He wished also to give his meed of praise to the Consulting Engineer, his old friend Mr. William Newbigging. [Applause.] The design of the works revealed an intimate knowledge of all the information that was available in connection with gas manufacture and gas plant. There had also been shown a cautious readiness to adopt new methods and new plant, and an ability to make use of the natural advantages of the site; also foresight so to use the land that, while to-day's demands were met, nothing was done to hamper the work which might become necessary in the future through developments and improvements in the methods of gas-making. He also congratulated the Gas Committee on having moved the gas-works outside the city. The laying of ten miles of mains from Partington into Manchester was a small matter compared with the advantages which would accrue. The Corporation were able partly to close down one works where the gas-making processes had to be carried on in a confined space. By going out into the country conditions had been secured which were better for economic production and more satisfactory for health reasons; the workpeople were no longer compelled to labour in a congested area. In itself the process of gas manufacture was healthy, but it was not very suitable for a congested area.

Alderman T. Cook, replying to the toast, said he had been in very close intimate touch with the Manchester gas undertaking for some twenty-five years, and he wanted on this occasion to express his appreciation of the loyalty with which his Committee had supported him. Similar support had been given to other Chairmen in the past. Whatever difference there might be in their views about politics, in matters affecting the gas undertaking the sole question was what course would be beneficial to Manchester. Reference had been made to Bradford Road. In his time the Bradford Road Works had been recast; it was not the works which Mr. Terrace knew thirty years ago. As the years passed it became necessary to make increased provision for gas manufacture at Bradford Road, as it became necessary at a later stage in connection with Partington. In the first instance the idea of going outside the city was not received readily, but it gradually grew in the minds of the members of the Committee until they ultimately resolved with unanimity to go outside. Prior to 1920, the steady growth in the consumption of gas showed there was a necessity for additional plant, and a new works was contemplated. Since 1920, the gas sales had increased by about 25 p.ct. That was a direct contradiction of the people who talked about gas being a dying industry; and he believed there would be other contradictions of that statement as time went on. To reconstruct the Gaythorn Works upon modern lines would have been a costly matter, and it would not have been possible to make provision there for future needs, because the boundaries and the size were definitely determined. So the Committee decided to go to Partington. If the wisdom of doing so was questioned, he would reply, first, that public opinion had been awakened in regard to the policy of removing utility services from the midst of large cities wherever it was possible; secondly, he would refer to the last returns from Gaythorn prior to its being closed down for manufacture. It was still a distributing station. Those returns showed that it cost much more to put gas in the holder at Gaythorn than was the case at Partington. He would remind those present of the great service which the gas industry did for the country during the war. In that respect Manchester stood second to none among the gas undertakings. The general public ought to realize how great the assistance was which the industry gave to the Government and to the country. There were people who were alarmed at the expense incurred in building this new works. The cost was round about a million pounds, and the effect was to add 2d. per 1000 c.ft. to the price of gas, in order to cover interest and sinking fund. But people should bear in mind that, when everything was working at Partington, there would be other economies. In addition, the city had been relieved of a nuisance; a more efficient supply of gas was ensured; to a large extent the future was provided for; and attention was being given to the needs of the workpeople.

An Admirable Site.

Alderman Sir William Kay, J.P., also responded to the toast. In making special reference to the installation at Partington, he stated that the results already were unique. The financial figures which had been placed before Parliament in 1921, when the Partington Gas Act was under consideration, had been fully justified. At the present time, provison was being made for the generation of 5 million c.ft. of gas per day; but it would be possible in the future to manufacture four times that amount. By the design and possibility of extension of the "Trefois" producers, the semi-direct sulphate of ammonia plant, the coke handling plant, and the coal handling plant, it was anticipated that ample provision had been made for prospective requirements. The 175 acres of land had been purchased at an agricultural price from the Cleansing Committee of the Corporation, and there could be no question of the works spoiling the amenities of the neighbourhood, even though it was of a rural character. His knowledge of the conception of the Partington Gas-Works scheme dated back for some eight years, when he had the opportunity of considering the matter with Mr. William Newbigging and Mr. S. L. Pearce. He thought the greatest compliment which was ever paid to the Manchester Corporation was one from Mr. Tyldesley Jones, K.C., the opposing Counsel in 1921, who, when cross-examining before the Select Committee of the Lords and Commons, admitted that it would be impossible to find a more suitable spot in this country for a gas undertaking. The works were served by an elevated railway running through the middle of it, so that the coal required had not to be lifted; it could always be dropped. In one respect, Mr. Terrace had touched upon a very delicate subject. In the past, the Manchester ratepayers had benefited to the extent of 3¼ millions sterling out of gas profits. That money had to all intents and purposes disappeared into a bottomless pit, and there was nothing to show for it except a tablet in the Manchester Cathedral erected to the memory of the man who first conceived the idea of taking profits out of gas in aid of the rates. Views had changed since that gentleman's day. It was to be hoped that the day would arrive sometime when such a thing as a coal cart or an ashes cart would be anathema in the City of Manchester; and he would dearly like to see an Act of Parliament passed making it a penal offence to burn raw coal in any city of a similar size to Manchester. He would like to see gas sold once more at 1s. per 1000 c.ft., because probably the smoke nuisance would then disappear.

Need for Greater Freedom.

Alderman W. Davy, J.P. (Deputy Mayor of Manchester) proposed the toast of "Our Guests." He said it was sometimes felt that large progressive cities like Manchester did not always receive that amount of consideration from Parliament which they deserved. The opinion was sometimes expressed that it should not be necessary to spend so much money and time in persuading people in London that public utility undertakings were necessary in order to fulfil the requirements of any particular district. In Manchester they were working under Acts of Parliament which had been passed fifty years ago, and there had been an expression of opinion that a Bill should be promoted in Parliament which would accord the Corporation greater freedom of action in the future. There was, indeed, now before Parliament a Bill which, if it was passed, or was not shelved by the election, would give greater facilities for the working of the different gas undertakings. There were about nine million consumers of gas in the country, and within an area of eighteen mile from the Manchester Town Hall there were about forty gas-works undertakings. The gas industry had very largely helped to make England the great commercial country it was to-day, and it was still continuing that great work.

Amenities of the Workmen.

The Rt. Hon. J. R. Clynes, M.P., responded to the toast. He assured Alderman Davy that he felt very keenly and seriously what he had said concerning the duty devolving upon those at Westminster respecting a radical reformation of present procedure conditions which harassed the endeavours of many local authorities to develop their legitimate interests. Whatever he could do to assist in bringing about an amelioration of that position he would be only too willing to undertake. During the course of his visit to the Partington Works that afternoon he could not help feeling how great had been the advance in the methods of gas production from those which obtained when he was a young Trade Union Official who had to visit gas-works 38 to 40 years ago. He was only 22 years of age at the time, but he recalled how hard and slave-like the work was, and how grimy the men. There were times, at the week-ends, when they had actually to labour at one stretch for 24 hours. Though they did actually get some little extra pay for this additional service, yet it was only a slight amount. At that time, not only was the work exceptionally hard, but it was very much more dangerous than nowadays. He welcomed the immense physical relief afforded to workmen by the establishment of scientifically and more humanely operated forms of plant. But this evolution of works

and labour problems brought in its train another consideration. It was now acknowledged on all hands that a workman had a real and definite claim upon society—that he was not to be regarded as merely a part of a machine. He was a human being who must in the very course of things take his rightful position as between himself and his employers. He was glad to have lived to see the day when there was a finer standpoint of enlightenment and acceptance of responsibility on the part of employers towards their employees than was the case when he first undertook Trade Union work some forty years ago. Of course, it must be realized that employers as a body, generally speaking, could only travel at the pace of the slowest of their number. Many individual employers would like to travel faster, but they were pulled back by the retarding influence of the least progressive in their midst. The efforts of both employers and employees should be directed towards creating a higher average sense of responsibility, and to persuading all to move co-operatively for the common good. He was very glad to hear Alderman Cook refer to the amenities of Partington. He would like to express his sense of gratification that for very many years past the relationships between the Manchester Gas Department authorities and their Trade Union workers had been of the very best kind.

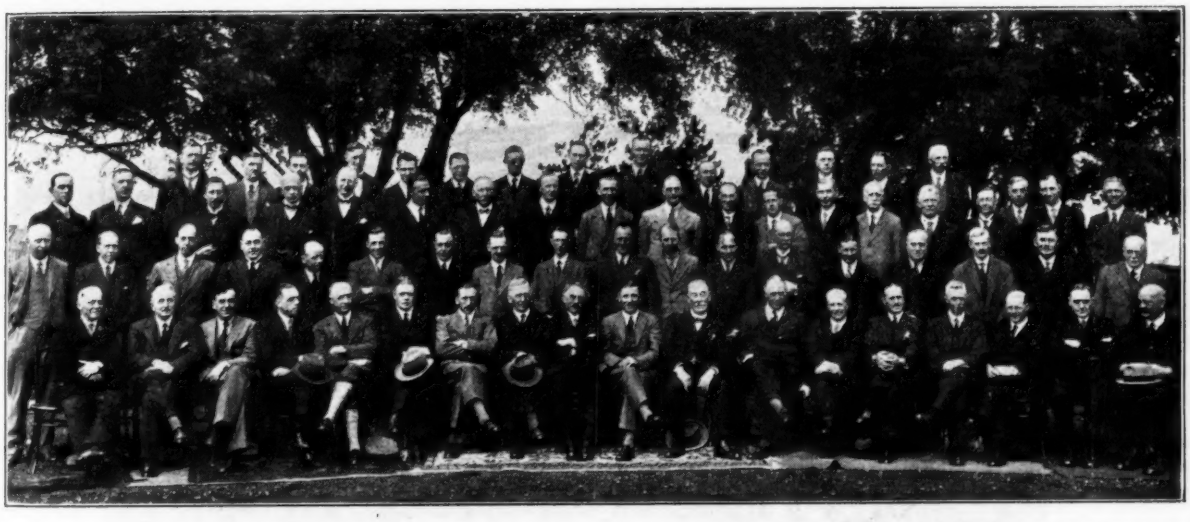
Councillor J. TOOLE, J.P., proposed the toast of "The Consulting Engineer and the Contractors." He said the toast was associated with the name of Mr. William Newbigging, one of the greatest gas engineers in the world, and of Mr. E. West, a Director of a very highly respected Manchester engineering firm; while he also wished to mention the Fram Reinforced Concrete Company, Messrs. Drakes, Ltd., of Halifax, and Messrs. W. C. Holmes & Co., Ltd., of Huddersfield, among others. In connection with the installation of all such large undertakings it must be remembered that a great deal of unseen valuable work had to be done also; and in this connection he would like to mention the names of Mr. J. H. Sillitoe, the General Manager and Secretary of the Gas Committee, and of Mr. J. H. Cadman, the Assistant Secretary.

Mr. WILLIAM NEWBIGGING, C.E., in responding to the toast as the Consulting Engineer to the Committee, said he had received very great assistance from people too numerous to mention particularly by name, but he felt it was necessary to refer to the help he had received from Mr. J. Brown, his old friend and assistant, and without whose skill and experience he felt he would hardly have liked to deal with the erection of such a large undertaking. Some thirty contracts were entered into by the Gas Committee of the Corporation, and all the work had been carried out, both in the letter and the spirit, to their entire satisfaction.

Mr. E. WEST (West's Gas Improvement Company, Ltd.) also responded to the toast. It was, he said, necessary nowadays that contractors for the erection of gas undertakings should devise apparatus which would promote the greatest possible efficiency in the production of gas, in order to assist in the conservation of the coal supplies, which were the nation's greatest asset. It should also be their constant endeavour to design apparatus which could be operated under the most humane conditions from the point of view of the workpeople.

The proceedings then concluded.

SOUTHERN ASSOCIATION AT EXMOUTH.



[Photo. by H. Trevor Jessop, 15, Rolle Street, Exmouth.

MEMBERS OF THE SOUTHERN ASSOCIATION ON BEACON HILL, EXMOUTH.

Good weather, the warmest of welcomes from the most genial of hosts, and a large muster of members all combined to bring about last Friday that which had been confidently anticipated—a thoroughly enjoyable meeting of the Southern Association of Gas Engineers and Managers at Exmouth. When, on the occasion of the annual meeting of the Association last March, Mr. E. T. Linscott (the Chairman of the Exmouth Gas Company) extended to the members a hearty invitation to visit Exmouth, he assured them that the Directors and the President, Mr. W. E. Dean (who is Engineer, Manager, and Secretary to the Company), would do everything they possibly could to give them an enjoyable time. They did. Mr. Linscott himself devoted the whole day looking after the welfare of the visitors; and it was to him obviously a pleasure to do so. He was supported by Messrs. G. F. Perriam and H. O. Holbrow, who are colleagues of his on the Board of Directors.

One does not require to be greatly an optimist to look forward to spending a pleasant time amid the beauties of Devon and its traditional hospitality; and the visitors had even more than this to attract them. In his Presidential Address, Mr. Dean had described the more interesting features of his works; and early on the morning of the meeting there was a large gathering for the inspection, which was undertaken with the guidance of the President and members of his staff—Messrs. C. A. Grinyer, C. Crutchley, and W. Youd. Delightfully situated as it is, and much esteemed both for residence and as a holiday resort, Exmouth prospers, and its Gas Company prospers with it. The Company is, indeed, recognized as part of the life of the town; and as the town is well ordered, so are the gas-works. The spick-and-span condition of all the plant, the all-round evidence of thoroughness, and the amount of work accomplished upon a restricted site were the things by which the visitors were most deeply impressed.

GUESTS OF THE GAS COMPANY.

The inspection completed, some minutes were spent in charge of the photographer outside the Royal Beacon Hotel, and then a party numbering somewhere around one hundred assembled in the Manor Hall for luncheon as the guests of the Exmouth Gas Company, with Mr. Linscott in the chair. Among the visitors was Mr. John E. Daw, the Chairman of the Exeter Gas Company. In proposing the toast of the Association, Mr. Linscott voiced his pleasure at seeing so many members and friends present, and made complimentary references to the Association and to the gas profession. To-day, he said, the gas industry was controlled by live men. The time had gone by when anybody could fill the position of a gas engineer. One undertaking gained from the experiences of another. The President had enjoyed a high technical training in one of the best works in England; and Exmouth had reaped an enormous advantage from that training at Tottenham. In the course of his response, Mr. Dean thanked the Chairman and Directors of the Company for the hearty invitation they had extended to the Association to visit the town. He told his fellow members that when first his name was put forward for the position of Vice-President he had placed the matter before his Board, who were unanimously in favour of his accepting office. He felt, and his Directors felt with him, that to be President of the largest District Association in the country was a great honour for the representative of an undertaking the size of that at Exmouth.

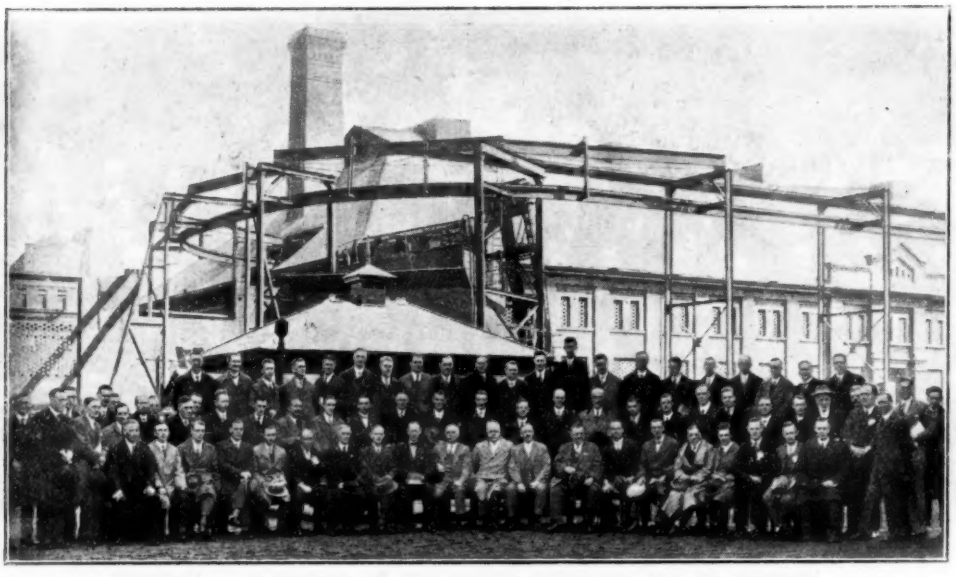
In a speech drawn from the still waters which run deep, Mr.

R. Robertson, of Bristol, submitted the toast of "The Exmouth Urban District Council." He remarked that Nature had lavished her favours upon Devon, and congratulated the Chairman of the Council and his colleagues on all they had done to make Exmouth such a desirable spot to rest in. The reply was by Mr. W. T. Godfrey (Chairman of the Council), who remarked that light and heat, properly controlled, were elements of beauty. Thus the members were experts in the knowledge of what was beautiful, and so would be able to appreciate Exmouth to the full. He complimented the Gas Company upon the progress made by the undertaking since the appointment of Mr. Dean.

"The Exmouth Gas Company" was proposed by Mr. Frank H. Jones, M.Inst.C.E. (Vice-President of the Association, and President of the British Commercial Gas Association), who took the opportunity to thank the hosts for their generous hospitality, and for having enabled them to see a gas-works kept as a gas-works should be. Referring to a remark that had been made regarding the size of the Exmouth gas undertaking, Mr. Jones declared that the Southern Association did not take any account of size. If the consumers were well served by a Board of Directors and by the Manager and employees, a small undertaking was doing just as much good work for the industry as the larger ones. This was the case with the Exmouth Gas Company. Anyone going into the works would know at once that the town was well served in this respect. Care of that kind inside the works indicated equal care outside. Those who worked there must be better men because of their surroundings. In his reply, the Chairman pointed out that the work carried out by the Company during the period of Mr. Dean's management had not been accomplished without great thought and great anxiety. The Directors were proud of the works as they saw them to-day, and they were proud of their Manager. They were also proud of their amicable relations with the Council and with the Electric Light Company.

The afternoon's arrangements were carried through under the same delightful conditions as those of the morning—with the additional pleasure arising from the presence of a number of ladies. During this part of the proceedings, the President was assisted by Mrs. Dean in looking after the comfort of the visitors. A five-hour motor coach tour across Dartmoor, with a pause for tea at the Moorland Hotel, Haytor, revealed more of the wondrous beauty of the countryside; and when the party broke up on the return to Exmouth, the uppermost feeling in the minds of all must have been one of gratitude to those who had provided so bounteous a feast.

MANCHESTER AND DISTRICT JUNIORS AT BLACKPOOL.



This photograph was taken on the occasion of the visit of the Manchester and District Junior Gas Association to the Blackpool Corporation Gas-Works on May 4. These works have undergone reconstruction recently; and an account of this work, together with a report of the proceedings on May 4, appeared in the "JOURNAL" for May 8, p. 353.

NOTES ON NEW BOOKS.

ALL ABOUT WATER UNDERTAKINGS.*

A comprehensive guide to the water undertakings of Great Britain and Ireland has been published by "Water and Water Engineering." It is the first year of publication, and the publishers already have plans for extension and improvement in succeeding issues. The Directory section of the present edition is, however, the most comprehensive and complete which, to our knowledge, has yet been published; and the technical data will be of everyday use to the waterworks official. This admirable pocket-book is divided into the following sections: Water Laws; Hydraulic Data and Formulæ; Pumps and Pumping; Index to Water Engineers; Directory of Water Undertakings; Waterworks Statistics; Special Purpose Charges for Water; Prices Charged for Waterworks Plant and Material; and Institutions and Government Departments. The printing is exceedingly clear; and the publishers are to be congratulated in bringing out a useful little volume which is certain to be appreciated by all waterworks engineers.

* "The Water Engineer's Pocket Book and Directory, 1929." Published by "Water and Water Engineering" (proprietors: The Colliery Guardian Company, Ltd.); 30-31, Furnival Street, Holborn, E.C. 4.

THE BEAUMONT GAS-OPERATED REFRIGERATOR.

A new and inexpensive automatic gas-operated refrigerator, known as the "King of Cold," is marketed by Messrs. Kirk & Standen, of 360, Boulevard National, Marseilles. Cooling water (which need not be cold) is required during the heating period only. On April 10 to 13, tests were made on the operation of this new unit, using gas as the heating agent; and the results were as follows:

The gas and cooling water were turned on at 3 p.m. on April 10, and turned off at 4 p.m.

The self-registering thermometer within the cold chamber then recorded 41° Fahr. (5° C.). The temperature fell rapidly, reaching freezing-point in half-an-hour; and at 6.30 p.m. it stood at 10° Fahr.

The thermometer rose slowly from this point, and at 4 a.m. on April 11 it had reached 14° Fahr. (−10° C.). Twenty-four hours after the commencement of the cooling period, it was 24° Fahr., and at 4 p.m. on April 12—48 hours after the cooling had commenced—the thermometer had risen to freezing-point. On April 13, at 8 a.m., the temperature was 36° Fahr. (2° C.).

Thus, state the firm, as a result of heating with gas for one hour, the refrigerating chamber was kept below 37° Fahr. for more than two days and a half.

MAINTENANCE PROBLEMS DISCUSSED AT SOUTHPORT.

Manchester District Conference of the British Commercial Gas Association.

The Manchester District Conference of the British Commercial Gas Association was held at the Prince of Wales Hotel, Southport, on Friday, May 10. Alderman E. TROUNSON, J.P., presided, and about 150 members and guests attended in the course of the proceedings.

Councillor JOHN BROOK, the Mayor of Southport, extending to the members a cordial welcome, said that he was especially pleased to greet them, owing to the important work in which they were engaged. Southport was favoured with a great deal of sunlight, but its residents appreciated the particular form of light which the "B.C.G.A." members so skilfully manufactured.

Alderman TROUNSON, in opening the business proceedings of the conference, expressed his appreciation of the kind welcome they had received from the Mayor of Southport; and he was also gratified to announce that Mr. Wade Deacon, of Liverpool, had been able to be present. He (the speaker) had taken a great interest in the work which had been accomplished by what was now one of the most powerful Associations in connection with the gas industry. He did not think that the public to-day sufficiently realized the great part which gas played in promoting the many benefits which were experienced in their every-day lives. Personal contact with the public counted considerably in all schemes embodying maintenance and service; and if the general principles carefully considered by the "B.C.G.A." were followed in their entirety, schemes to suit various townships could readily be adjusted in their details so as to be of the greatest value to the gas-consuming public. He understood that a short written account of the various schemes now in vogue was being prepared, so that they might be analyzed and tabulated, in order to give the fullest information possible on service. The spirit of co-operation in this direction was good for all.

GAS SERVICE.

By W. M. CARR, Engineer and General Manager of the Stretford Gas Board.

The author said the increasing necessity of service in all industries was to-day generally appreciated, and all progressive gas undertakings were treating it as the most important factor in the selling of gas. He purposed, in opening this discussion, to deal particularly with the economic aspect of service in its relation to gas charges. It was to-day common practice, particularly in gas undertakings owned by local authorities, to carry out all maintenance free of charge. It was free of charge, however, only in the sense that no special charge was made to the individual consumer; the cost of the maintenance being borne in the price of gas. The disadvantage of this method of charging for service was that, under the flat-rate system of charge, the consumer using the largest quantity of gas paid most for the service he received. This was the strongest argument in favour of the institution of a separate service charge assessed independently of the charge for gas on the quantity consumed.

A further common practice in municipally owned undertakings was the supply of gas cookers on loan—*i.e.*, the hire charges were included in the price of gas. This was, he considered, economically unsound, for, with the inclusion of such charges in the price of gas, the consumer making the most use of the apparatus paid the highest rental for such apparatus. As illustrating this, he would instance the circumstances existing at Stretford, where cookers were supplied and fixed on loan until Dec. 31, 1928. The cost of this service, including interest and sinking fund charges on the capital cost of the cookers, repairs, maintenance, and renewals, amounted to 0·48d.—or, say, ½d.—per therm of gas sold.

INSTITUTION OF COOKER RENTALS.

The Stretford and District Gas Board Act of 1922, embodied in which was the Model Clause authorizing the gas undertaking to supply gas apparatus, at the same time required that the amount charged for such gas apparatus should be shown separately on each account rendered to the consumer, and that the charges should be so fixed as to meet the cost of supplying such apparatus. The Ministry of Health pointed out that the practice of fixing cookers on loan did not comply with the conditions of this Clause; and, from the beginning of the current year, the price of gas was reduced to all ordinary consumers by ½d. per therm, and a hire rental of 3s. per quarter introduced for gas cookers.

In regard to the cooker rental of 3s. per quarter, it was stipulated that the rental should continue only for ten years, as in that period the sinking fund charges on the capital cost of the cooker would terminate. Therefore, the consumer who still retained the cooker would not pay a further hire rental after that period.

The result of this policy had been that, out of 11,500 cookers on loan, some 350 had been returned, and, almost without exception, it had been found that the cookers which had been returned were not being used, but that the consumers had had one fixed because there was nothing to pay for it, and considered they might as well have a cooker for use in emergency. Therefore, he maintained that the institution of a rental charge in place of an inclusion of the charges in the price of gas had not had any adverse effect so far as the consumers were concerned. On the other hand, as the consumers began to understand the position, it was very much appreciated, particularly by those making the most use of the service.

Another effect of the introduction of a hire rental in place of loan had been an enormous increase in the purchase of gas cookers by consumers on the hire-purchase system. During the past five months the number of cookers that were sold under the hire-purchase system was over 160 per month in what was a comparatively small undertaking. It could not, he suggested, be questioned that cooker hire, fixed on an economic basis—*i.e.*, at such a rate as would balance the cost—operated fairly as between all consumers; and, moreover, favourable hire-purchase terms were advantageous both to the consumer and to the gas undertaking, in that individuals owning apparatus were more careful of their maintenance, and, as owners, would agreeably pay for such maintenance. The analysis of cost of gas undertakings showed that the cost of the loan of meters and cookers, and the free maintenance of the same, together with the free maintenance of service pipes, was normally from 1½d. to 2d. per therm of gas sold. He thought it would be generally agreed that the average consumer did not wish to pay, directly, or indirectly in the price of gas, any charges that should rightly be borne by his neighbour, or *vice versâ* that his neighbour should pay charges that should rightly be borne by himself; and the managements and staffs of gas undertakings could effect much in general correspondence, and when interviewing consumers on the subject of gas charges and hire rates, by going to some trouble in explaining exactly how the charges were built up. In this way they would foster mutual understanding and confidence.

ADVANTAGES OF A TWO-PART TARIFF.

The advantages of a two-part system of charge or a block system were apparent so far as they would enable the cost of service to be evenly and fairly distributed between consumers, and the adoption of such systems would appear to be an economic necessity where to-day service was included in the price charged for gas. He had recently had under consideration a block system of charge which was to be introduced by a small undertaking in the Midlands selling 35 million c.ft. of gas per annum. The Directors of that Company found themselves in a position to reduce the price of gas by, approximately, 1d. per therm on the flat-rate basis. It was felt, however, that the effect of such reduction would not result in any substantial increase in the demand for gas for heating and cooking, and, moreover, it was considered that the present maximum price of 13d. per therm was not excessive when applied to consumers taking less than 10 therms per quarter. He might further explain that this Company had recently been meeting with severe electrical competition, particularly for the heating load and radiators, and so on, and that this was another inducement which had caused the Directors to consider especially the desirability of a block system of charge. He thought it would be of interest if he explained at some length how the block system of charge was arrived at.

The total number of consumers in the undertaking was 1376, and their consumption of gas was as follows:

Consumers taking under 10 therms per quarter	357
Consumers taking over 10 and less than 20 therms per quarter	587
" " " 20 " " 30 " " "	155
" " " 30 " " 40 " " "	65
" " " 40 " " 50 " " "	51
" " " 50 " " 75 " " "	60
" " " 75 " " 100 " " "	29
" " " 100 " " 150 " " "	22
" " " 150 " " 200 " " "	14
" " " 200 " " 300 " " "	11
" " " 300 therms per quarter	15

A block scale was built up on the basis of the analysis of the costs of the undertaking. The number of consumers was noted, and it was found that the cost of all service and supply of gas, cutting out charges fluctuating with the number of consumers, amounted to just over 8d. per therm.

The scale was built up on the following basis:

For the first 10 therms of gas consumed per quarter,	1s. 1d. per therm (the present maximum price charged by the undertaking).
For the next 10 therms of gas consumed per quarter	1s. per therm
" 30 " " " "	11d. "
" 50 " " " "	10d. "
For all gas over 100 therms per quarter	9d. "

In the case of automatic meter consumers, the present maximum charges remained in force for the first 10 therms.

Where meter only was provided by the Company	1s. 2·2d. per therm
,, ,, and fittings were provided by the Company	1s. 3d. ,,
Where meter, fittings, and cookers were provided by the Company	1s. 3·4d. ,,

The above maximum charges would be subject to discount as follows:

For all gas consumed over 10 therms up to 20 therms per quarter	1d. per therm
For all gas consumed over 20 therms up to 30 therms per quarter	2d. ,,
For all gas consumed over 30 therms up to 50 therms per quarter	3d. ,,
For all gas consumed over 50 therms up to 100 therms per quarter	4d. ,,
For all gas consumed over 100 therms per quarter	5d. ,,

For power gas consumers the scale to be the same as for ordinary meter consumers up to 100 therms per quarter.

For gas consumed over 100 up to 250 therms per quarter	8½d. per therm
,, ,, ,, ,, 250 therms per quarter	8d. ,, ,,

It would be observed that, under this proposed scale, all the consumers, with the exception of the 347 consuming less than 10 therms per quarter, would get some reduction, and, moreover, the new scale would afford an incentive to all consumers to use more gas, in that they could readily see what rate they would have to pay for the gas over and above their present consumption in the event of their installing additional apparatus. Assuming, for instance, that a consumer taking 100 therms per quarter decided to instal a gas fire, he would know that under the Company's scale all the gas burned in the fire was going to be charged at 9d., and not at the original price of 1s. 1d. Again, so far as the system was applied to automatic meter consumers, it was of great advantage in that the prepayment consumer could readily reckon what discount he was entitled to on the number of therms he consumed. The cost of introducing a block system of charge worked out at £580 per annum, whereas the cost of an all-round reduction on the flat basis of 1d. per therm would be £650 per annum. Therefore, an advantage was extended practically to all the consumers of the undertaking, and it was an advantage of great benefit to those who were making the most use of the service at a cost which was not more than a flat-rate reduction. He thought it would be agreed that the scale was very steep, and had the advantage of applying to even the smallest consumers, while it was put into operation at low cost so far as the undertaking was concerned.

The cost of introducing a block system of charge where a reduction in price was under consideration was, therefore, low in comparison with the cost of a reduction in the flat-rate charge, and it had the great advantage of distributing the service and standing charges on an equitable basis. The disadvantage in the adoption of a block system of charge in the case of the Gas Company referred to was that the undertaking operated under the sliding-scale for the regulation of its dividend, and, therefore, the shareholders were in a measure penalized in putting forward a fairer system of charge for the benefit of the consumers. He believed that the introduction of modified systems of charging to distribute costs of supply and standing charges fairly between consumers was an urgent necessity, and that all gas undertakings should endeavour, without delay, to introduce such charges as far as was possible within the limits allowed by present legislation and conditions, with a view to educating the public to appreciate the desirability and advantage of such charges.

Industrial Gas Service.

Mr. Carr then dealt with the subject of industrial gas service, which, he said, was a matter which had received much attention by the undertaking he represented. He thought everyone would agree that service in the industrial field was to-day even more necessary than service in the domestic field. The industrial load offered the greatest possibilities for expansion; and he had been amazed to find the extent to which crude oil had displaced gas because the service had not been available to demonstrate that, when properly applied, gas could give better results than crude oil in heat-treatment processes. His experience from recent investigations was that gas was often being used on the same lines by the industrialist as was solid fuel, and with equipment which was not suited to the needs of the user. In one instance, he found that gas had been tried for soft metal melting, and that its use had been discontinued because the cost was 5s. 4d. per ton; crude oil furnaces being substituted for the process. The gas had been applied by placing burners under metal pots which had been originally heated by coke. The cost of melting by gas in coke furnaces was 5s. 4d. per ton of lead, while the use of crude oil furnaces brought the cost down to 1s. 9d. per ton of lead. By putting in up-to-date gas-melting furnaces, it was demonstrated that the process could be effectively carried out at a cost of 1s. 5d. per ton of lead, including 33⅓ p.ct. of re-melt. He wished to cite this instance as demonstrating how vitally necessary gas service was to the industrialist.

The directors of gas undertakings must be ready to provide expert advice in heat-treatment processes. This, of course, would necessitate a detailed knowledge of the manufacturing processes for which gas was to be used, and an appreciation of the necessary equipment. In certain instances, and to secure certain classes of business, equipment must be specially designed to meet the requirements of the customer. Very often a process could not be carried on by a type of furnace which was designed according to present-day standard practice. It should be emphasized that real progress could not be made in such directions until confidence had been established between the industrialists and the gas undertaking, and that the chief officials of the undertaking should themselves deal with the industrial engineers and managers. It was certainly his own experience that the initial work, so far as securing an entrance and obtaining the confidence of the industrialist was concerned, had to be done by himself personally, and that this was a point which would well repay the attention of the chief official of every gas undertaking.

A gas undertaking must further be prepared, after investigation, to put forward schemes demonstrating guaranteed costs and results, on the basis of the highest efficiencies that could be obtained. Further, they must unhesitatingly advise, without bias, as to where gas could be suitably employed, and where it could not. This was a particularly important point. He was recently approached by a firm who were heating a great kiln by means of producer gas on the continuous system. The firm were anxious to try town gas, but he strongly advised them that the cost would not be as low as that they were achieving by their present system. Unbiassed advice must be given to the industrialist in every instance.

Mr. Carr then stated that he had for some time past been engaged with his Assistant Engineer upon a survey of heat-treatment processes in one of the largest industrial works in the North of England, which was mainly concerned with the manufacture of electrical apparatus. The works utilized town gas to the extent of 25 million c.ft. per annum, and a producer plant had been installed which, in terms of town gas, yielded the equivalent of 30 to 40 million c.ft. An enormous quantity of crude oil was also used. An industrial survey of the whole of the apparatus, extending over several months, had proved that town gas could be effectively and economically used to a far greater extent, in order to replace Mond gas and crude oil. In some instances where solid fuels were used there was a possibility of trebling the load and at the same time showing a substantial saving on manufacturing costs. This definite possibility could never have been ascertained in the absence of research work extending over many months. It was work which had demanded the closest attention of himself and his Assistant Engineer, and which should undoubtedly occupy the whole-time attention of someone thoroughly qualified to undertake it. It was a specialist's job.

Two-Part Tariff for Industrial Gas.

A year ago Stretford introduced a two-part system of charge for industrial gas users, which was taken up by practically all the large consumers of gas in the district. It had, however, taken industrialists some time to become convinced of its advantages. At the outset they were all exceedingly nervous, particularly as to what was going to be the effect of the demand charge. After twelve months' working, they were looking at the matter with increasing confidence. The system had not only been the means of putting a lot of money into their pockets, but it had also caused them to inquire in what other directions gas could be applied. Admittedly the two-part tariff was not so scientific in its application as the four-part tariff, but it had the advantage in operation that it was more easily understood by the consumer, who was, therefore, more ready to adopt it. It was probable that, if the four-part tariff method had been tried in the first instance, the progress made would not have been so great.

The two-part tariff in operation at Stretford was built up on the assumption that storage and mains charges could be eliminated from all loads falling outside the peak loads which occurred between the hours of 8 a.m. and 8 p.m., from which time the load began to descend throughout the night to practically *nil*. The load on Saturday mornings was also light. The peak loads therefore necessarily occurred during the twelve hours' day. The two-part tariff, however, did not differentiate between the summer and the winter loads, and, in one instance, a large biscuit factory engaged in the manufacture of ice cream wafers, where the consumption fell away rapidly at the end of September, and did not increase again until March, the incidence of the demand charge in the winter quarter was such as substantially to increase the price of gas above the ruling flat rate. Whereas under the flat rate the charge would have been 8d., under the two-part charge it amounted to 1s. Probably in the case of a summer load it would pay to make a special contract.

Discussion.

Mr. G. P. Mitchell (Blackburn) said that "service" was defined as the occupation of a servant; and if a servant was not able to do his work, he was dismissed. The gas industry had fulfilled a necessary service for more than a century. In later years it had encountered serious competition which made it necessary to make

provision for maintenance, to endeavour to keep the lighting load, and to increase the popularity of heating and cooking appliances. To accomplish this, gas authorities ought to control the supply from the holder to the point of ignition; but in the past they had been unwilling to accept responsibility for fittings beyond the outlet of the meter. Consumers were left to make their own choice in the purchase of burners, &c., and they usually obtained a cheap type from the nearest stores, where profit was the only consideration. Lack of efficiency led to complaints.

When the policy of maintenance was under consideration, one naturally examined the complaints. Those of the "no gas" type predominated. Now every appliance must have an ample supply of fuel if it was to give satisfaction; so the fundamental principle must be "adequate supply." It could not be doubted that in every gas supply area a large number of service pipes in use to-day were inadequate, because originally the major portion of those services was laid for lighting only. Cooking and heating appliances were then installed one by one until the complaints of "no gas" began to arise. The Blackburn area of supply was not an exception to that rule. In 1920 it was ascertained that several houses were supplied through a $\frac{3}{8}$-in. diameter lead pipe taken from a 1-in. lead pipe which did duty as a main for 16 to 28 houses. Some consumers could only make use of cookers when others ceased. It was apparent that an improvement must be made, and work was commenced forthwith. In the past nine years they had done extensive mainlaying, and renewed services to the number of 14,050—40 p.ct. of the total consumers. Consequently complaints were fewer, consumers were more satisfied, the consumption had increasd by 331 million c.ft. (41 p.ct.), and the revenue was larger. It might be argued that maintenance was costly. Reference was often made to the amount per 1000 c.ft. of gas which it cost. From experience he could say that the cost was more than compensated for by having a larger percentage of satisfied consumers, more efficient appliances neatly fixed, and a far smaller number of complaints.

MAINTENANCE SCHEME AT BLACKBURN.

The maintenance scheme at Blackburn began with a census of the appliances in use by consumers. This was compiled during the summer months by the meter inspectors, who recorded their returns in the "Consumers' Register." The register was on the card system. It was filed in street and district order, with a card for each consumer showing the number and kind of appliances, the size of service and meter, and also the job number when any visit was made. When frequent visits were recorded on a card, note was made for special attention. Where gas fires and radiators were installed a coloured tab was attached to the card, and the appliances received attention during the season for cleaning and refuelling. A free supply of fuel was provided when the renewing was done by men from the Department. Men intended for this class of work were employed for a time as assistants to the gasfitters, and if they gave satisfaction in that capacity they passed a period of probation in the cleaning and repair shop until they were proficient. Then, when the opportunity occurred, they were allotted a district in which to work, and were provided with a truck which contained the necessary tools, burners, mantles, globes, cooker parts, and gas fire fuel. It was returned to stores weekly on Saturday morning for cleaning and replenishing. Any special part required was ordered from the foreman inspector when visiting. Job sheets showing time spent and work carried out had to be made up, and signed by the consumer. A receipt book was provided for the sales of burners, globes, mantles, and cooker parts, which were sold at showroom prices. All cash received was paid into the showroom on Wednesday evening and on Saturday morning.

If a maintenance scheme for advising as to apparatus and providing for its cleaning and regulation had been in vogue for a greater number of years, there would have been less ugly and repulsive gasfitting. There was sufficient evidence to prove that it was an essential service, and ought not to be reckoned as a charge against revenue—more so where the undertaking had no appliances on simple hire or on loan. The men employed had access to the consumers' premises, and had ample opportunities of explaining the advantages of modern appliances. Thereby numerous sales were effected and many complaints were forestalled. He would add that in his opinion "service" meant more than maintenance; it included prompt and courteous attention to complaints, whatever their nature. This was the sort of service given in Blackburn; and the consumers appreciated it very much. One feature was that complaints were dealt with daily as they arose. They were not carried forward except in special circumstances, like the cold snap a few weeks ago. Every day stood by itself.

He was pleased to hear that Mr. Carr had taken the bold step of putting appliances on a ten years' system. It was not fair to ask the consumer to go on indefinitely paying for an appliance; and ten years was a very sound proposition.

MAINTENANCE AT PRESTON.

Mr. J. BOXHALL JAMES (Assistant Secretary, Preston Gas Company) said it was his intention not to do any specializing, but to endeavour to give a lead as to a scheme which might be reasonably, safely, and advantageously adopted. Gas undertakings had certain responsibilities to the consumers they supplied. What could be done to keep those consumers and encourage them to develop the use of gas? In deciding that question one had to consider as far as was practicable individual characteristics and peculiar local conditions. One main point was that there must be co-ordination in the methods adopted. Gas undertakings had many branches; and all should be brought into the same line if possible. In all the same spirit should be inculcated. In Preston they had experimented with that idea, and had been most successful. Methods of advertising, and introducing appliances to the consumers, required progressive thought and very careful planning; and he would describe what had been done in Preston during the last year, and the extraordinary results which had been achieved. In different parts of the town they displayed their wares and gave lectures and demonstrations to people of the class who rarely or never visited a showroom. There were splendid attendances, and for hours after the lectures were over the staff were employed in demonstrating the appliances. Another very strong point was to teach the general public the advantages of the improved appliances which had been placed on the market by manufacturers in recent years, and help them to realize the ability of gas to perform duties which a few years ago most people did not think it could do. Then they went a step further, and decided that in their campaign it was desirable to get into more intimate touch with the consumers by co-ordinating the advertising and specializing in window displays. Leaflets which showed appliances intended for various purposes were delivered by the staff. The interest taken by the public in the apparatus available was surprising. It proved how beneficial it was to get directly and intimately into touch with the consumers.

Having developed their education campaign in that way, they decided to attack. They had to meet very heavy competition from their electrical friends, but fortunately they were able to keep on excellent terms with them. In regard to the use of gas in industry, records were wanted on which to base a start; and with a view to reducing the cost to the Company, they decided to combine a census with a canvassing scheme. The census scheme was exactly what the word indicated; the canvassing was a continuation of the process of educating the consumers. The census scheme was started in January, and by the end of April 2856 visits had been made by men who were experts—skilled fitters specially chosen from among the employees of the Company. The methods of procedure were identical with those applied by every undertaking that adopted a census scheme. Such a scheme was in operation at a place in the South where he was employed before he came to Preston; and it was found there that communications from the works to the consumers were much more appreciated if the thing was done in the most official manner. Thus a very politely phrased letter was sent to them. That procedure was repeated in Preston. The census man followed up the letter; he advised, he recommended, he introduced business. If in any works, factory, hotel, restaurant, or house any appliance could be used with advantage and was not yet installed, he introduced that new appliance to the consumer. There were six trained men who were called the "service" men. When the job was done, a letter was sent to the consumer to inquire if he had had the benefit of the service. In many cases, by return of post, there came back letters of appreciation.

It was obviously to the benefit of the gas industry as a whole that such schemes should be adopted. In Preston it had been paid for hand over fist by the introduction of new business. The profit on orders for new appliances paid 50 p.ct. of the cost of the census and service. Through a census and maintenance service, appliances could be sold continuously and regularly. In 1928, between January and April, £585 worth of appliances were sold. This year, in the corresponding period, the sales amounted to over £1000. This clearly showed that the consumers appreciated the value of the work and liked to be visited in their homes and businesses and workshops, as long as the gas people were prepared to offer advice and to indicate clearly and definitely that they were out to give some benefit to the consumers. With a view to future business, records were kept on a definite system upon cards. At the moment there were potential orders for some 200 appliances which would be required before the end of the year. This was the foundation of a considerable increase in prospective business.

Last year they had special displays prepared for heating and lighting; and their business grew tremendously. This year they went a step further, and the window displays and advertising had been of an illustrative nature. The present display at the showrooms and offices in Preston was the work of a local lady artist, and had proved an extraordinary success. The day it was put in the window the traffic was held up in Fishergate; it required two policemen to keep the traffic moving. Therefore he said without hesitation that it paid handsomely to introduce into the showroom windows and into displays generally something of an artistic nature.

SOUTHPORT'S SERVICE METHODS.

Mr. J. BOND (Southport) said it was a capital idea of Mr. Mason's to ask the Chief Engineers of various gas undertakings to supply reports upon service and maintenance. No doubt those reports would be analyzed and tabulated, so that information would be available for both municipal gas undertakings and gas companies. He had always maintained that the foundation of service was to have adequate gas mains, large services, high-capacity meters, and a good gas pressure. If that foundation was reinforced by a high calorific value, and a constant composition of the gas, there would be very few complaints. Then, before starting the superstructure, he thought it was advisable to use the "big hammer," and scrap a lot of the antiquated apparatus, more especially those gas fires with very small flue openings. He was very pleased to note that both Mr. Carr and Mr. Mitchell had gone in for the ten years' hire-purchase scheme for gas consuming apparatus. It was an excellent scheme. In Southport it was made flexible, because there was a moving population, and often people leaving Southport wanted to dispose of apparatus which they had taken on the hire-purchase system. The apparatus was taken back into the Department, depreciated perhaps a little more than 50 p.ct., and renovated. Then poor people were given a chance; the apparatus being let out to them on simple hire

at very reasonable rates. Since the new showrooms were opened in Southport a tremendous business had been done in gas appliances.

MAINTENANCE SYSTEM AT BURNLEY.

Mr. J. H. CLEGG (Burnley) said he thoroughly agreed with Mr. Carr that consumers should not pay for services rendered to other people. During the last eight or nine years this question of service had been discussed frequently, and he recollected that in the early days some undertakings said they were paying as much as 9d. per 1000 c.ft. for service. He totally disagreed with this idea. It was desirable to give service up to a point, but by going beyond that point large sums of money were wasted which could be better used for reducing the price of gas. A low selling price of gas was one of the best means of furthering the interests of the gas industry.

In Burnley maintenance was carried out in a simple manner, and the cost amounted to roughly 0·44d. per therm. All the labour required was supplied free of charge. For all fittings or parts required in order to give that service, a charge was made equivalent to cost price.

He thoroughly agreed with Mr. Carr that it was to the interest of the gas undertaking to sell appliances, and not to send them out on simple hire. This had been definitely brought home to him in Burnley by the fact that they had over 30,000 cookers out in a town which had 31,000 consumers. Almost every one of those cookers had been paid for. The same applied with regard to fires, boilers, and other appliances.

Mr. Bond had struck the keynote in saying that it was necessary to give an adequate supply at adequate pressure. It was the first essential; and the general principles which led up to it implied that the gas undertaking should have some control over the plumbers. For many years this had been done efficiently in Burnley. The conditions were revised, and it was made imperative upon the plumber that he must not fix anything less than a ¾-in. pipe at the outlet of the meter. This might appear extravagant; but if the gas industry continued to progress as it had done in the past fifteen years, a ¾-in. pipe would not be too large.

He thoroughly agreed with what had been said about the education of the consumer; it was also necessary to educate the staffs of the gas undertakings and also councillors. A lot of harm was done by statements made in a council chamber by members of the council who were not connected with the gas committee. Often the result of months of work was destroyed by ill-considered remarks made in the course of a debate.

To his mind such a charge as that outlined by Mr. Carr was rather too complicated. It was essential to have simplicity in the method of charging, and co-ordination among gas undertakings was advisable, as well as co-ordination of the departments in an undertaking. It was time a system of two-part payment was introduced. Not that they would derive financial advantage, but it would be a sales point in competition with electricity. In Burnley it was advertised that, with a payment of 20 p.ct. of the rateable value, electricity could be bought for any purpose at a halfpenny per unit. In argument with the consumer, the fixed charge was sometimes ignored, and he was told his electricity would cost him a halfpenny a unit. If gas could be charged for in a similar way the figure would be staggering to their electrical friends. The two-part system was not so scientific as the four-part; and he thought that, for industry, they must in time develop a three-part or a four-part system.

Mr. Carr had mentioned that in his industrial charge he took into account the 12 hours' night load, but he did not make it clear whether he applied this load to the fixed charge or to the commodity charge.

In Burnley the consumption for industrial purposes was about 45 millions, and it was almost entirely used for the heat-treatment of metals on a small scale, and for gas engines. Gas engines were not yet dead; but he was afraid they were being allowed to slip into oblivion. He would like also to make reference to the apathy in regard to the lighting load. This load was of immense importance. The gas service rendered at Burnley included the maintenance of incandescent fittings. He thought that many gas engineers were feeling rather shaky on the subject of the suitability of gas, and whether it was worth while pushing it, for lighting purposes. He was confident that it was. In Burnley they had been able to maintain their lighting load not only in the cotton mills and the schools, but also in the houses of consumers. Ninety-five p.ct. of the consumers were working-class people, and in proportion they used far more gas than people with much more money. There were 31,000 gas consumers against 8000 electricity consumers; and of the 31,000, 23,000 were essentially lighting consumers.

SERVICE AT ALTRINCHAM.

Mr. H. R. S. WILLIAMS (Altrincham) observed that the discussion showed what a huge subject gas service was, and was indicative of the change which was coming over the gas industry as a whole. It was suffering from having been born too early. For over a hundred years it had been carried on in much the same old way, and people were now beginning to see that in many respects it was the wrong way. They were now realizing that, besides selling gas, they had a duty to perform to the consumers. At Altrincham they had no regular free maintenance scheme, but for doctors, dentists, architects, and hotels—people who were in direct contact with the gas-consuming public—there was an inspection scheme which dealt with them free of charge. Their methods of dealing with appliances were similar to those described by other speakers. They had a ten years' hire-purchase system interpreted in a very elastic manner. If a consumer wanted an appliance, they saw that he got it. So long as they recovered their money in some way, they were not particular how it was paid for. In regard to the industrial load, he thought Mr. Carr was correct in saying that only the chief officials, or men with special knowledge, could deal with industrial gas utilization. It was a special branch with which the ordinary cooker and fire maintenance fitter could not deal. In many cases gas could not compete, heat for heat, with other fuels; and it would ill become gas engineers to decry fuels of which they themselves were large users. He supposed gas undertakings were the largest consumers of producer gas. They had to show industrial users that, though, fuel for fuel, their price might not be the lowest, service for service gas could be made to render results which in efficiency and economy would compare favourably with any other means. In order to do this, a man with a specialized training was needed.

MR. CARR'S REPLY.

Mr. CARR, replying to Mr. Clegg's question, said the demand charge should be rendered quarterly, and be based on the maximum demand in twelve hours. For the purposes of the Stretford undertaking, the periods were 8 a.m. to 8 p.m., and then 8 p.m. to 8 a.m. In other words, the load between 8 p.m. and 8 a.m. came off the period of maximum demand. The commodity charge was rendered monthly.

VOTES OF THANKS.

The CHAIRMAN, in moving a vote of thanks to Messrs. Carr, Mitchell, and James, said he felt the conference had rendered national service to the gas industry.

Mr. H. WADE DEACON, C.B.E., J.P., Chairman of the Liverpool Gas Company, proposed a vote of thanks to Alderman Trounson for presiding.

LUNCHEON.

The members were the guests of the Southport Gas Committee at a luncheon which was served in the Prince of Wales Hotel. It was presided over by Counillor J. E. HINDLE, the Chairman of the Committee.

After the Loyal Toast had been honoured,

Mr. W. M. MASON, Manager of the "B.C.G.A.," proposed the toast of "The County Borough of Southport." He praised the natural advantages enjoyed by the town in the way of fresh air and sunlight, and the additional attractions provided by a progressive municipality.

The MAYOR (Councillor John Brook), responding, said they were proud of their officials generally, and among those no one occupied a higher position or was more respected for his ability and his personality than Mr. Bond.

Councillor H. KENNEDY, a member of the Gas Committee, who proposed the toast of "The Gas Industry," mentioned that he was also a member of the Electricity Committee. He had been told by his colleagues on that Committee that the gas industry was dying; but those present evidently were not overwhelmed by what was said by the electrical people. Neither the Chairman of the Gas Committee nor the Gas Engineer were alarmed by such statements. Indeed, in spite of the keen competition of electricity, the gas undertaking had progressed more rapidly than it did previously. Its future success depended mainly, if not entirely, on the chief officials who controlled it; and the only way to get the best was to pay for the best. Municipalities must make the posts so good that they appealed to the best brains.

Mr. S. TAGG, J.P. (Preston; Past-President of the Institution of Gas Engineers), replied to the toast. He said the gas industry had its roots deep in the industrial growth of the country. Within the gas industry developments were taking place which corresponded with those required in the large productive industries. Nationalization on the lines adopted by the chemical industry was not possible. Gas undertakings must remain to a large extent independent units of production; but they had co-ordinated all their services. Through the "B.C.G.A." they had co-ordinated publicity work, development work, and, to a large extent, research work for increasing the efficiency of appliances. Through the National Gas Council they had co-ordinated their relations with labour, their Parliamentary work, and the whole of the problems which arose on the administrative side. They were seeking, and had obtained to some extent, freedom from the antiquated legislation which controlled their operations. They hoped to obtain in the near future greater freedom for development. Looking at the programme for the restoration to prosperity of the basic industries, coal and iron, it was evident that envious eyes were being turned to the market which the gas industry had established. The iron and steel producers declared they must have coke at the lowest possible price to compete with Continental competitors. The coke oven people said they must have a market for their coke oven gas. Thus it was necessary to co-ordinate the problems of the iron and steel, the coke oven, and the gas industries.

The toast of "The Southport Gas Committee" was proposed by Alderman F. S. PHILLIPS, Chairman of the Salford Corporation Gas Committee, and was responded to by Councillor HINDLE.

AFTERNOON SESSION.

Alderman TROUNSON again presided at the afternoon session. In opening the proceedings he stated that the subject of atmospheric pollution had received the concentrated attention of a large number of learned men interested not only in the promotion of the general health of the populace, but also in the preservation of those architectural treasures of which they were so justly proud as a nation. The importance of pure atmosphere in relation to health could not be too greatly emphasized; and he called for the co-operation of all bodies interested to re-double their efforts to bring about the elimination, as far

as possible, of the smoke nuisance which was so prevalent, more particularly in the industrial centres of the country. He had the honour to occupy the position of Chairman of the Southport, Birkdale, and West Lancashire Water Board; and it was of paramount importance that the water supply should not be contaminated in the slightest degree. He maintained that it was necessary for a town that was properly governed to have not only a pure water supply, but an atmosphere free from smoke and other solid particles, and a supply of good food cooked by gas and served under cleanly conditions. Purity and cleanliness were the hallmarks of health, and any service which could offer these two essentials, combined with true economy, ought not to fail to receive every measure of support from those interested in this vital question. *Salus populi* was Southport's motto; and they were helping to uphold this by their efforts on the gas estate; for he felt that in a large measure the great fight with the smoke fiend was in the hands of gas engineers and managers, as being the people successfully to combat the smoke nuisance. Gas engineers had a great work before them; and, through their efforts in research and the modernization of plant, he felt confident that they would serve the community in the best possible manner. He had had placed in his hands that day a communication which Mr. J. Baxendell, the Meteorologist for the Borough of Southport, had prepared and supplied to Mr. Bond. In this communication it was stated:

The latest officially published soot, &c., deposited figures are over two years old, and are only given in metric tons per square kilometre; but semi-official ones for the year ended March 31, 1928, were published in "The Engineer" of Feb. 15, 1929, and given in British tons per square mile. I feel sure you cannot do better than use these. They, however, include every kind of atmospheric pollution deposited in the official gauges during the twelve months. In the large towns most of this is soot, but at Southport dust of one kind or another, and sea salt (of which we naturally get a good deal) account for a great part of our small total, so we must avoid describing this as tons of soot.

I hope the following figures will serve your purpose:

Year Ended March 31, 1928.	Total Deposited Pollution in Tons per Square Mile.	
Burnley	876	
St. Helens	575	
Liverpool	570	
Salford	529	(mean of three gauges)
Rochdale	420	(mean of ten gauges)
Southport	143	(mean of two gauges)

The results for Salford and Rochdale would be very much more than the above if they had not some gauges in their cleaner outskirts which bring down the "means" for those towns.

ATMOSPHERIC POLLUTION AND HEALTH.

By R. VEITCH CLARK, B.Sc., Ch.B., D.P.H., M.A., M.B., Medical Officer of Health for Manchester.

Dr. Clark said that his purpose was to show that in atmospheric pollution they had one of the most potent adverse factors which existed in this country so far as their national and individual welfare was concerned. They were essentially an urban people. The great mass of their population was crowded into industrial and commercial centres; and unless they watched what they were doing, they would degenerate physically even more than was found to be the case at the commencement of the war. Personally, he represented preventive medicine; and there were two great avenues of activity in connection with that branch of science. There was one branch of it which dealt with the broad fundamental basis of life, and another in which a direct attack was made upon individual disease or groups of diseases. It was not necessary upon that occasion to say very much concerning the second aspect of the question; but a direct wedge had now been driven into the strongholds of tuberculosis, venereal disease, infantile mortality, pneumonia, and many other diseases.

During the past century the problems connected with the purification of water supplies, the disposal of sewage, the removal of household and human refuse, the cleansing of streets, &c., had been dealt with as fully and as completely as it was within the power of man to cope with them. Why? Because the results of neglect were so imminent and so vividly dangerous. When contaminated water supplies gave rise to a sweeping outbreak of typhoid fever, the public imagination was fired. They said: "This kind of thing will decimate us; we must have our water pure." The same remark applied to milk supplies when scarlet-fever and diphtheria blazed forth into public notice. The housing problem was being grappled with; they all knew what frightfully overcrowded towns meant. What was there left? Atmospheric pollution. This was the last of the great massive powers to oppose the welfare of civilized states such as their own. Its elimination was a fundamental necessity. No special training was required to deal with it—merely a spirit of willingness and co-operation from many sides—and it was merely because earnest human endeavour was necessary that he came forward to ask for their assistance in the conflict.

What was the broad outstanding fact? They had no generalized conception of what smoke distribution meant. The pollution of rivers appealed to them all directly when they were in the neighbourhood of such rivers, and they knew that a river polluted at any point along its course would be offensive for many miles farther along. Consequently, Rivers Boards had been formed. It was not left to one particular area to look after its own little strip of territory; there was one single controlling body which looked after a given riparian base. Much the same kind of thing could be said of smoke, because it had been traced in abundance for a distance of fifty miles from its source of origin. Travel where one would between the industrial districts of Lancashire and Yorkshire, and one would not find a bit of naturally coloured hill grass; even the Lake district was contaminated.

The percentage of possible ultra-violet radiation in the centre of Manchester, and as recorded from the top of a building 85 ft. above the street level, was 47 p.ct. If the record had been taken at the street level, it would probably have been about 25 p.ct., owing to the greater atmospheric pollution. Manchester received 5 p.ct. of the possible amount of sunlight in January, while in December it was as low as 3 p.ct.; the highest figure reached in summer being 34 p.ct. In Southport the winter sunlight ranged from 20 to 30 p.ct., and in summer went up to about 50 p.ct.

Dr. Clark then exhibited a chart showing the immense improvement which had been effected during the past forty years in the elimination of fogs, which, he stated, was due in large measure to the advances made in the supply of gas and electricity for power purposes. The lesson to be learned from the chart was that it would be possible within the course of another ten years to prevent the formation of fogs altogether which owed their origin to industrial factors. A chemical analysis of the materials deposited in Manchester throughout the year showed that the amount of tarry material in the soot was equivalent to 71,600 galls. of tar. He need not remind them of the extremely irritating properties of tar and tarry acids; and yet these substances were inhaled into the lungs. It could easily be realized what this would mean from the point of view of physical efficiency. Sulphur acids were deposited in Manchester to the equivalent of 285,000 galls. of concentrated oil of vitriol each year.

Why should there not be a Smoke Prevention Board formed to deal with the problem in the industrial areas? It was not sufficient for half-a-dozen different towns or half-a-dozen different districts to have their own individual powers. Smoke produced at one spot blew away to another. For example, there should be a Smoke Prevention Board to deal with the whole of the industrial district of Lancashire, which was practically one continuous town from Manchester to Burnley.

"RACHITISME ANGLAIS."

Councillor W. MELLAND (Manchester), Chairman of the Smoke Abatement League, said that when he was visiting some friends of his in Belgium he was very much astonished to hear them refer to the disease of rickets as *rachitisme anglais*. It was significant that their Continental friends should attach such a distinction to the complaint. It had been computed that the extra cost of what might be termed the family wash-tub in Manchester was no less than £242,000 per annum; and this was only in respect of two factors—soap and coal. It might be confidently stated that the financial loss per head of the population in Manchester and Salford was at least £2 per annum, making a total of no less than two million pounds due to atmospheric pollution alone. Medical officers of health all over the country were, of course, realizing the importance of the subject, and there were now about sixty local authorities affiliated to the Smoke Abatement League. The great improvement in atmospheric cleanliness which had already taken place in Manchester was very largely due to the efforts of the gas industry. There were now 170,000 gas cookers and grillers in use, and upwards of 47,000 gas fires; while a great many people were burning the splendid vertical retort coke. A resolution was to be put forward at the next meeting of the Manchester City Council that the price of gas supplied to the citizens should be reduced; and, as a member of the City Council, he would certainly vote in favour of it. It was hoped in the near future to be able to form a national society to deal with the problem of smoke abatement.

VOTES OF THANKS.

Dr. COATES (Southport) proposed that a very hearty vote of thanks be accorded to Dr. Veitch Clark for his address.

Mr. W. M. MASON, in seconding the vote, said that one of the greatest sources of satisfaction to him personally was that the conference proceedings had indicated that the gas industry was regarded not merely as a trading concern out to make profits, but as an industry working for the public good.

Mr. J. ERNEST JARRATT, Town Clerk of Southport, and Dr. BAILDON (Southport), supported the vote of thanks, which was carried unanimously by acclamation.

Alderman POLLARD (Oldham) proposed that a vote of thanks be accorded to the President for his services in the Chair; and this was also carried unanimously.

The proceedings then closed.

ROCHESTER, CHATHAM, AND GILLINGHAM GAS COMPANY.

New Showrooms at Chatham.

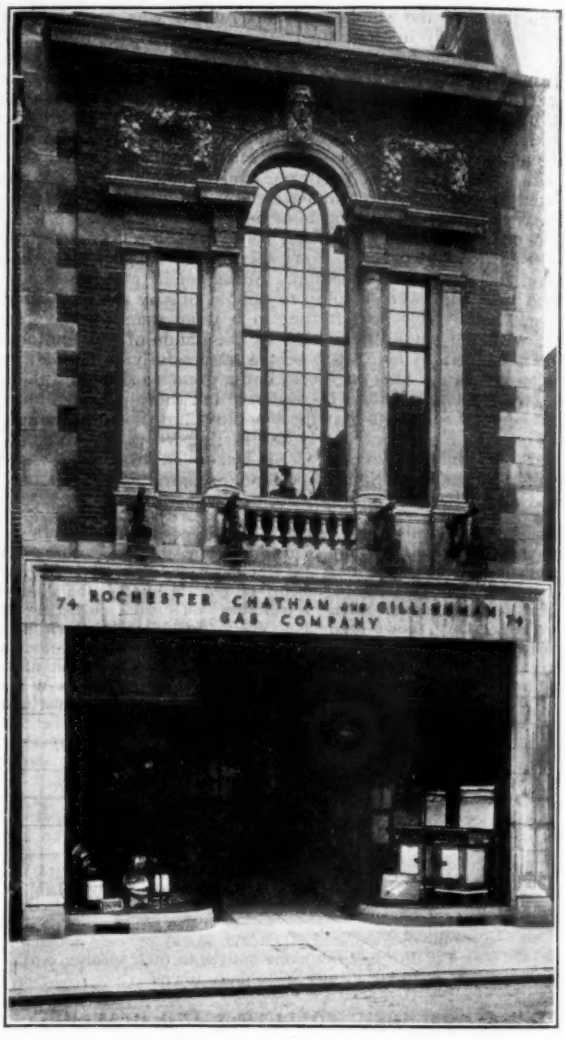
The Rochester, Chatham, and Gillingham Gas Company have erected new showrooms on a prominent site in High Street, Chatham. The position selected is extremely well placed, with ample depth, but with rather a restricted frontage. To overcome this, a centrally recessed arcade was decided on.

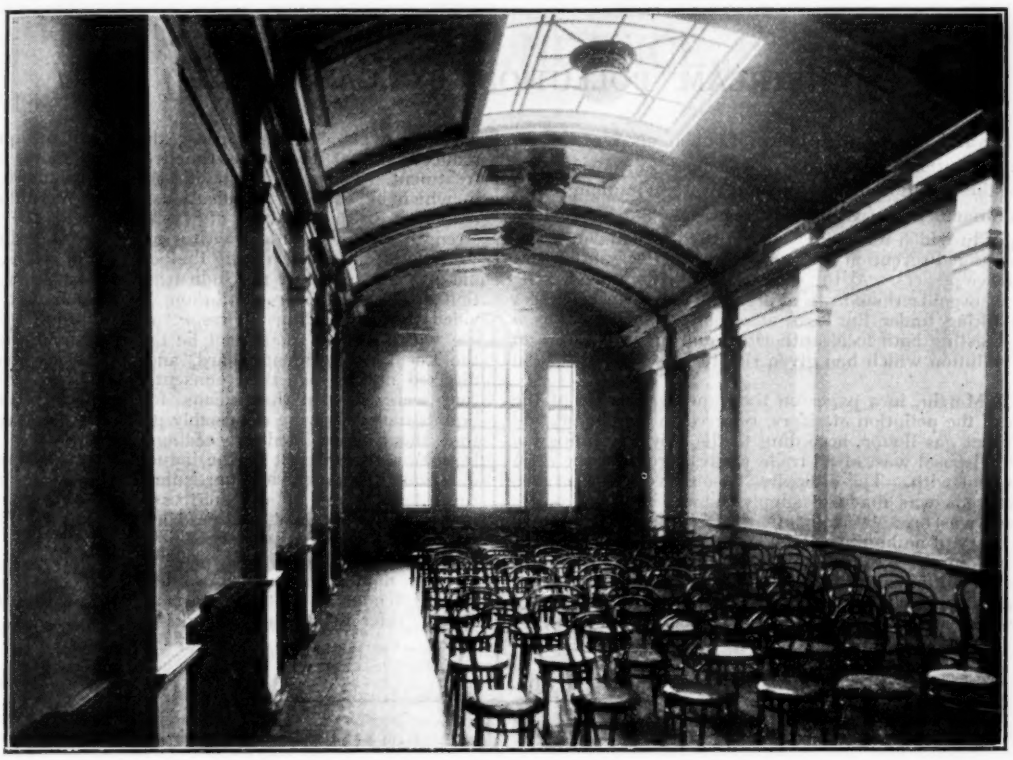
The Renaissance façade is carried out in 2 in. multi-coloured local bricks with artificial stone dressings of a warm cream tint. The tile roof is surmounted with a *flèche* and lantern, and completed with a gilt vane in the form of a 16th century ship. The exterior is lighted by four 8-light "Rochester" lamps on suitable cast brackets finished in bronze.

The main entrance in the arcade leads directly to the showroom devoted to the display of gas fires set in simple surrounds. The tiles in these surrounds are slabbed, and the hearths are separate units, so that the tiles can be exchanged as frequently as required. The walls are panelled to a height of 8 ft. 6 in. in Austrian oak, which is left in its natural colour. The artificial lighting in this main showroom is by means of ceiling ventilating lamps finished in coin bronze. The whole or any portion of these ceiling ventilating lamps in the showroom and arcade windows, and also the outside "Rochester" lamps, can be lighted and extinguished as required by means of a distant control device working in conjunction with a type 5/3 controller. A feature of this controller is that, by means of a special selective device, the lamps will automatically light and extinguish on week-days, but will remain unlighted on Sundays.

The hot water and cooker section, divided from the gas fire section by oak Doric columns and beam treatment, has been tiled out with pale coffee coloured tiles, which, while forming a distinct background for the white enamelled goods, nevertheless tones adequately with the general colour scheme of old parchment effect. In this portion is shown a recess where a gas cooker, gas fire, and hot water boiler are installed as an example for the modern kitchen. In another recess, containing a tiled-in bath, are shown geysers in different finishes, and here also are exhibited a lavatory basin heater, a shaving-water heater, and a special bracket finished in crobrite plating for heating curling tongs.

At the end of the hot water section is a small oak panelled reception room, which is useful for interviewing consumers whose demands can best be met under quieter conditions than prevail in a busy showroom. In this room is an inglenook fire-





place in which is fitted a Jacobean fire in armour-bright finish, and by the side of this fireplace is shown a cigar lighter.

An oak staircase leads to a well lighted landing and anteroom, where more gas fires are exhibited in suitable settings, and thence into the Lecture Hall, a lofty room capable of seating about 100 persons. At the rear of the platform is a kitchen fitted complete with gas cooking stove, and hot and cold water for the use of the cookery demonstrator.

The basement floor, which runs the complete length of the building—a matter of about 130 ft.—is devoted to apparatus of a more commercial nature, and to store rooms and staff lavatories. The lighting in this basement is by means of ceiling ventilating lamps, the first two of which are operated by distant control switch from the top of the staircase, and the remaining lamps by another switch in the basement itself. This feature of advanced control never fails to interest consumers. A coke boiler situated in the basement supplies hot water to radiators for heating the Lecture Hall and also to a cylinder in the demonstrator's kitchen, and, by means of a separate set of connections, the water in this cylinder can alternatively be heated by the gas boiler in the model kitchen recess.

The new buildings were erected by Messrs. C. E. Skinner & Sons, of Chatham, to the designs and under the superintendence of Major F. Cornelius-Wheeler, of Messrs. Dudley Newman, Elliott, & Wheeler, Architects, 29, Bedford Row, W.C.1.

STREAM POLLUTION BY GAS-WORKS.

At the Royal Sanitary Institute in London on Wednesday, May 8, a well-attended conference was held to consider the question of the pollution of streams and rivers by, among other things, manufacturing and trade refuse. Mr. John D. Watson read a paper in which he strongly urged the amendment of the Rivers Pollution Prevention Act, 1876, to give river authorities more extensive powers. At the same time he recommended the formation of organizations in local areas, in the form of Rivers Boards, working under the ægis of a central authority, as a means of assisting both local authorities and manufacturers to avoid the pollution which has given rise to litigation in several districts.

Mr. A. J. Martin, in a paper on the general question of the prevention of the pollution of rivers, referred to gas liquor, and said that spent gas liquor, according to the Royal Commission on Sewage Disposal was, of all trade wastes, probably the most difficult to deal with. The difficulty, he observed, was aggravated where gas was made to supply a large area, or where waste liquor was brought from other gas-works to be treated for the recovery of ammonia. The gas industry, in 1927, set up a Research Committee to investigate the methods which might be adopted for minimizing the production of gas liquor effluents or for rendering such effluents suitable for running into town sewers or into rivers and streams. It was hoped that, by varying the processes now in use, the volume of liquor might be reduced and at the same time rendered more amenable to treatment. There were doubtless many industries, he said, in which by suitable modifications in the manufacturing processes or by the recovery of waste products, the volume and strength of the polluting wastes might be materially reduced. While desirous of preventing the pollution of rivers, Parliament did not lose sight of the industrial interests concerned. Section 6 of the Rivers Pollution Prevention Act, 1876, provided that proceedings in respect of pollution by manufacturing waste liquids should not be taken without the consent of the Local Government Board, and the Board were expressly directed not to give their consent to such proceedings unless they were satisfied that means for rendering the polluting liquids harmless were reasonably practicable and available, and that the contemplated proceedings would inflict no material injury on the interest of the industry. In passing the Act in question, Parliament had particularly in view the prevention of the establishment of new sources of pollution; but this object had not been obtained, and that in itself was a sufficient reason for amending the Act of 1876.

A long discussion took place upon the papers; and one speaker made the general comment that gas liquor was the worst offender of all trade wastes. Beyond this there was no specific reference to the gas industry.

SCOTTISH JUNIOR GAS ASSOCIATION (EASTERN DISTRICT).

Annual Meeting.

In the Gainsborough Hall, Leith Street, Edinburgh, the Scottish Junior Gas Association (Eastern District) held their Annual General Meeting on May 4—Mr. Robert J. Gavin, the President, in the Chair.

The Hon. Secretary read the minutes of the previous general meeting, and these were approved.

Then the Council's annual report for the session was submitted. Reference was made to the death of Mr. Allan Reid, of Brechin, an Hon. Member. Mr. Reid's decease, stated the report, was a considerable loss not only to the Association, but to the industry.

The balance-sheet, showing a credit balance of £24, was also approved.

Election of Officers for 1929-30.

The office-bearers for the session 1929-30 were elected as follows:

President.—Mr. John Scobie, Dunfermline.

Vice-President.—Mr. David Yule, Alloa.

Hon. Secretary and Treasurer.—Mr. A. L. Duff, Edinburgh.

New Council Members.—Messrs. D. Garrie (Burntisland), John Ford (Inverness), Wm. Balfour (Bridge-of-Allan), and, co-opted for the year, R. Stewart (St. Andrews).

The Librarian, Mr. J. Ford, and the Auditors, Mr. J. R. Moyes (Stirling) and Mr. Alex. MacDonald (Prestonpans), were re-elected to office.

Education.

A report by the Association's two Representatives (the President and the Hon. Secretary) on the Scottish District Education Committee was then read. This dealt with the Committee's recent consideration of the report by the South Eastern Education Committee. The conclusions arrived at, it was stated, were that it would be an unfortunate and retrograde step to substitute an examination scheme for the existing educational scheme, that systematic study under the personal direction of teachers had a value which could not possibly be obtained by correspondence courses, and that the members would deplore the overthrow of a scheme which sought to improve the standard of knowledge and to improve the status of the industry.

PRESIDENTIAL ADDRESS

Mr. R. J. Gavin then delivered his Presidential Address. This was published in the "Journal" for May 8, p. 351.

Discussion.

Mr. John Scobie (Dunfermline), referring to the Education Scheme, said he was not completely in agreement with what had been said; and he suggested that students who were allowed to pass much time in the workshops, or to serve a certain period of time in each department of an undertaking, could in this way receive an intensive practical training. He agreed that there was a lack of uniformity in coal supplies. Cases were known where coals had come from another pit, but with the wagons labelled according to the specifications. He asked Mr. Gavin to tell them how he had tested the gas to ascertain what quality was best suited for consumers. It was his opinion that a ten years' hire-purchase agreement for appliances was too long a period.

Mr. A. L. Duff (Granton), referring also to the Education Scheme, said that in Edinburgh the apprentices had greater opportunities given them now than in previous years, as each one passed from shop to shop and through various offices, and in this way received a wide, practical training before the expiry of apprenticeship. He considered that Kirkcaldy, in securing sales locally for 87 p.ct. of their coke, had achieved great efficiency.

Mr. S. G. Melville (Edinburgh) asked if the figure of 700° C. for superheated steam was correct, as it seemed very high.

Mr. John Ford (Inverness) asked Mr. Gavin what methods were used for the blending of coal. In regard to wash-boilers, in view of the increased efficiency from a tinned copper pan, would not the extra cost of maintenance be more than compensated for?

Mr. D. Morton (Kinross) considered that the make of tar per ton of coal carbonized was high. At the present time there was a difficulty in disposing of tar. He had found that a gas of 425-430 B.Th.U. was very suitable, and seemed to be more easily controlled than other qualities. What, he asked, would be the most suitable pressure for every-day requirements? Reference had been made to the cutting of service pipes, and the subsequent joining-up with a long screw. When laying a new service pipe, he made use of a union at that point where the pipe reached the consumer's boundary wall, so that in the event of a stoppage it was not necessary to break up the roadway. The only opening necessary was in soft ground, and this saved time and expense in breaking-up and reinstating the ground, and did not influence road traffic.

Mr. Gavin, replying, said that Mr. Scobie's suggestion regarding practical experience for students, as well as theoretical knowledge, was a good one; and he would assure them that, in looking after the interests of members, he would keep the matter in view. The decision to supply gas of a certain calorific value was arrived at following tests carried out over three or four years, during which the quality was gradually brought down until the complaints received were reduced to a minimum. The returns of hire-purchase appliances were low in Kirkcaldy, and had given them no concern. The arrangements made in Edinburgh for apprentices were good, and he congratulated the Department on the consideration shown. The figures given in respect of superheated steam were correct. In respect to blending, this was done at the filling hopper, where a man attended to supervise the tipping of carts. Trimming was also carried out there. The general experience in regard to copper pans of wash-boilers was not good. It was usual for them to deliver gas at 35-tenths pressure at the nipple.

CORRESPONDENCE.

[We are not responsible for opinions expressed by Correspondents.]

Who Invented the Gas Meter?

SIR,—In the "Manchester Evening Chronicle" some weeks ago an article appeared stating that the first gas meter was invented by a Manchester man named Richard Roberts. I wrote to the paper asking for proof of the statement, as I had always been under the impression that Samuel Clegg invented the first gas meter. I received the following reply, which was printed in the paper:

> With reference to what I said a few days ago about gas meters having been invented in Manchester by Richard Roberts, "A. W." sends me an interesting and challenging note.
>
> "I would be greatly obliged," he writes, "if you could inform me where I could obtain proof that Richard Roberts invented the first gas meter. I have always been under the impression that Samuel Clegg, an Engineer from the firm of Boulton and Watt, Birmingham, invented the first gas meter in 1815. I have a drawing of this meter in front of me as I write. To make sure, I turned up the Directory of the 'GAS JOURNAL,' 1929, and it states under History and Statistics: '1815. Clegg invented the first gas meter.'"
>
> "A. W." writes with some authority, and friend Roberts seems to be promoted to a back seat. I must begin a new paragraph for my defence.
>
> Some time in September, 1900, an exhibition of gas and other illuminants was opened in St. James's Hall, Manchester. Among those who spoke at the opening ceremony was the late Sir William H. Bailey. Here is part of his speech as reported in a Manchester newspaper:
>
> Gas meters were invented in Manchester by Richard Roberts. Most books on the subject said Clegg, of Oldham, was the inventor, but that was a mistake. A deputation of the Manchester and Salford Police Commissioners waited upon Richard Roberts, who was engaged in a small way of business near the old "Examiner and Times" printing works, and requested him to invent a method of measuring gas. He was successful and immediately afterwards Clegg invented another meter.
>
> That, as it stands, is conclusive enough, and I need hardly remind "A. W." that Sir W. H. Bailey, a distinguished Engineer and Inventor, and an accepted authority on engineering matters, would not be likely to make such statement unless it were true.

That this Richard Roberts may have been working on a similar invention is just possible, as I found, on looking up records of Manchester, 1815, mention of Richard Roberts, and that he took out a patent at a later date for an improvement in the spinning mule; but I am unable to trace any mention of gas measuring instruments, either to Roberts or the Police Commissioners.

I wrote to Mr. A. T. Gilbert on the matter; and the following is an extract from his reply.

> Upon the receipt of your letter, I made a journey to H.M. Patent Office, to look up Richard Roberts'; and I can find no reference to that name connected with any Letters Patent for any gas appliance. Neither is the name given to any patent prior to 1815. Clegg, in his Patent Specification of Dec. 9, 1815 (968), claims to be the first inventor; and others who follow make reference to his originality of the idea.
>
> Had this Mr. Roberts been approached officially, as is claimed, then surely he would have had sense enough to put forward an official claim. Of course there are many individuals who may have worked upon a similar invention at the same time as, but in entire ignorance of, another; but the one who obtains the right at law to claim precedence and position in history is he who files his claim in the lawful manner. Such may be the case of Mr. Roberts; and we can only feel sorry that the noble Baronet did not verify his references.

ARTHUR WINTERBOTTOM,
Official Inspector.

City Justices' Gas Meter Station,
London Road, Manchester,
May 8, 1929.

[Perhaps our readers will be able to throw some light on this matter.—ED. "G.J."]

High-Capacity Meters.

SIR,—I notice, in your issue of May 8, that Mr. T. B. Armitage is reported as saying:

> The high-capacity meter, with its much greater capacity in proportion to the size of its case, is certainly growing in favour, and is a great advantage in premises where space is limited. It is, however, too early yet to say definitely whether it will oust the standard type of meter from general favour. It must be remembered when using the high-capacity meter that there is not the same latitude in the badged and actual capacity as in the old "lights" type, when a meter could often be worked at double its badged capacity, and still function correctly. I fear if anything of that kind is attempted with the high-capacity meter, in addition to an appreciable drop in pressure, incorrect registration is more than likely. It is, therefore, advisable to fix a meter badged to pass the full quantity that is likely at any time to be normally required.

It is a pity that greater efforts are not made to verify such statements before uttering them. Much has been written and published on this subject, and I for one have been trying hard to assist undertakings to grasp the new conditions, and to explain to them how the meter industry are trying to assist them.

To make such a statement just at the moment when the Institution of Gas Engineers are considering whether they will give a definite lead is hardly opportune, to say the least. The whole question of badging is likely to come under review, and both buyers and manufacturers would welcome a definite lead in this matter. The schedule of sizes and capacities at present in vogue is reminiscent of dress fashions—simply compiled to suit the whim of the buyer.

With regard to the tendency of the high-capacity meter to "go slow," I should like to give your readers more data, should you have available space at some future date.

A. T. GILBERT.

12-48, Northumberland Park,
Tottenham, N. 17,
May 13, 1929.

REGISTER OF PATENTS.

Maximum Demand Meters.—No. 308,861.

CARR, W. M., and THORP, F., both of Stretford.

No. 3838; Feb. 7, 1928.

This invention relates to gas meters of the type in which there is combined with the usual metering mechanism, for indicating the total gas consumption, further automatic mechanism actuated in part in unison with the metering mechanism and in part by clockwork for indicating the maximum gas consumption in one of any desired number of predetermined periods of time.

The invention comprises the improved combinations and arrangements of parts described and claimed for giving the said maximum gas consumption indications.

Service Cleansers.—No. 309,737.

SMITH, W. G. L., PICKFORD, W. E., and HATTERSLEY & DAVIDSON, LTD., all of Sheffield.

No. 10,896; April 13, 1928.

The patentees say that gas service cleansers are known in which a compounding form of pump comprising coaxial cylinders is arranged within the storage chamber to deliver air thereinto, but that such cleansers present considerable difficulty to the inexperienced user in the matter of renewing or replacing the piston leathers of the pump. The present invention has for its main object to construct a service cleanser which is just as efficient but in which there is no difficulty in getting at all or any of the pistons of the pump whenever they need attention. A further object is a construction wherein the cup leathers are easily renewable.

According to the invention, a compounding pump with two or more cylinders arranged otherwise than coaxially is fixed within the storage chamber of the cleanser; the piston-rods being arranged to pass into the cylinders through readily removable glands.

Other features appear from the specification, which is accompanied by detailed drawings.

Incandescent Burners.—No. 308,414.

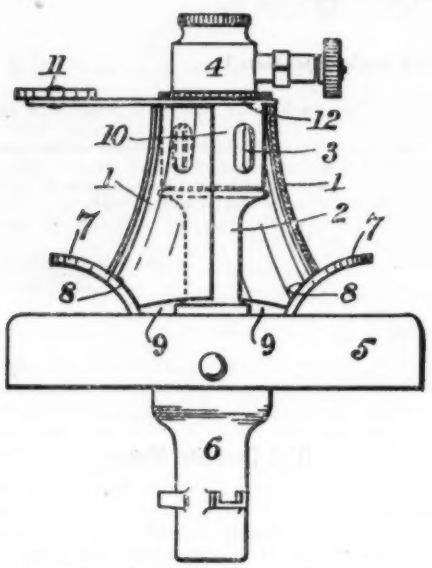
GOULD, F. J., and DICKENS, C., both of Grosvenor Place, S.W. 1.

No. 3486; Feb. 3, 1928.

According to this invention, which relates to inverted incandescent gas burners of the "wing" type, there is provided a primary air preheating bell above the gallery and around the mixing tube, and the bell is so constructed that parts of its lower edge are adapted to rest on and fit closely to the upper curved faces of the wings on the gallery, while the primary air inlet openings are intermediate the said parts of the edge. The primary air inlet openings, being formed between the wings, are out of the path of the outcoming gases, and thus substantially prevent the said gases entering the bell.

A burner embodying the invention is illustrated in the accompanying drawing, in which a bell 1, shown partly in section, surrounds a mixing tube 2 with primary air inlet ports 3 and an in-

jector 4 at its upper end, and a gallery 5 and a nozzle 6 at its lower end, the metal extending across the gallery having two wings 7—7 pressed out of it.



A New Lighting Burner by Gould and Dickens.

Part of the lower edge 8—8 of the bell is shaped to fit closely to the upper sides of the wings 7—7; and openings 9—9 are provided between the bottom of the bell and the top of the gallery, said openings admitting primary air to the bell, which air, passing upwardly to the inlet ports, becomes preheated. The ports 3 are adjustable by a sleeve 10 turned by means of a finger 11; and the sleeve is flanged at 12 to hold the bell in place around the tube 2.

APPLICATIONS FOR PATENTS.

[Extracted from the "Official Journal" for April 17.]

Nos. 10,729—11,501.

Blakeley, W.—"Spirally-guided gasholders." No. 10,750.
Bottke, D. v.—"Combination gas and coal stoves." No. 10,921
Clark, W. E. N.—"Gas burners." No. 11,014.
Davidson, T. M.—"Coal carbonizing retorts." No. 10,761.
Dolphin, J.—"Controlling valves for gas burners." No. 11,160.
Dumbleton, C.—"Gas burning installations." No. 11,192.
Electrolux, Ltd.—See Clark, W. E. N. No. 11,014.
Firth, Blakeley, Sons, & Co., Ltd.—See Blakeley, W. No. 10,750.
Gibbons, Bros., Ltd. (Pistorius).—"Grates for gas producers." No. 10,958.
Gilbert, A. T.—"Gas meters." No. 11,494.
Howlett & Co., Ltd., M.—See Dolphin, J. No. 11,160.
Keith, G.—See Dumbleton, C. No. 11,192.
Keith & Blackman Company, Ltd., J.—See Dumbleton, C. No. 11,192.
Pedley, L. H.—"Gas lighter." No. 11,044.
Poulton, A. S.—"Means for igniting gas burners." No. 10,969.
Regent Manufacturing Company.—See Pedley, L. H. No. 11,044.
Short, M. J.—See Poulton, A. S. 10,969.
Simpson, S.—"Gas meters." Nos. 11,164, 11,165.
Sutherland, J. G.—"Dry gas meters." No. 10,765.
Thomas, E. C.—"Diaphragm rim for gas meters." No. 11,024.
Willey & Co., Ltd.—See Simpson, S. Nos. 11,164, 11,165.
Yates, H. J.—See Dolphin, J. No. 11,160.

[Extracted from the "Official Journal" for April 24.]

Nos. 11,502-12,368.

Butterworth, E.—"Dry gas meters." No. 11,891.
Falkner, A. J.—"Gas valves." No. 12,248.
Fletcher, W. B.—"Treatment of coke oven gas." Nos. 12,307, 12,308.
Groves, W. W. (Naamlooze Vennootschap Silica en Ovenbouw Mij.).—"Apparatus for controlling pressure of gas in oven chambers." No. 11,615.
Hill, E. W.—"Gas generators." No. 12,021.
Illingworth Carbonization Company, Ltd.—"Carbonization of coal." No. 12,067.
Imperial Chemical Industries, Ltd.—See Fletcher, W. B. Nos. 12,307, 12,308.
Koller, K.—"Pressure gas producers." No. 11,834.
Koppers Company.—"Manufacture of gas." No. 11,617.
McAulay, J.—See Fletcher, W. B. No. 12,307.
Parkinson & Cowan (Gas Meters), Ltd.—"Dry gas meters." No. 11,891.
Pneumatic Conveyance and Extraction, Ltd.—"Gas washing apparatus." No. 12,058.
Power Gas Corporation, Ltd.—See Hill, E. W. No. 12,021.
Rambush, N. E.—See Hill, E. W. No. 12,021.
Robinson, J.—"Gas main leakage indicator." No 12,290.
Seil, G. E.—"Gas purification materials." No. 11,619.
Smith, W. A.—See Pneumatic Conveyance and Extraction, Ltd. No. 12,058.
Standing, C.—"Gas taps." No. 11,998.
Thorp, F.—See Butterworth, E. No. 11,891.
Vincent, G. T.—"Geysers." No. 11,646.
Wheeler, T. S.—See Fletcher, W. B. No. 12,307.
Wilcock, A. E.—See Vincent, G.T. No. 11,646.

PARLIAMENTARY INTELLIGENCE.

[From Our Special Correspondents.]

HOUSE OF LORDS.

Gas Mentioned in the King's Speech.

The King's Speech on the prorogation of Parliament contained the following reference: A Bill has also been passed which, it is hoped, will assist the further development of the gas industry.

Royal Assent to Gas Bills.

The Royal Assent was given on May 10 to the following Bills: Gas Undertakings; Yorktown (Camberley) and District Gas and Electricity; Gas Light and Coke Company; Winchester Water and Gas; Wandsworth, Wimbledon, and Epsom District Gas; Imperial Continental Gas Association; and Newcastle-upon-Tyne and Gateshead Gas.

The Romford Gas Bill, which had passed the House of Lords and been read a first time in the Commons, was suspended, and will be taken up again at the same stage in the next Parliament.

The following Special Orders have been approved: Tunbridge Wells, Ulverston, Chesham and District, Cirencester. The Stockport Gas Order was referred to the Special Orders Committee on May 8.

HOUSE OF COMMONS.

The following Special Orders have been approved: Tunbridge Wells, Ulverston, Chesham and District, and Cirencester.

Plans have been deposited in connection with the Gravesend and Milton Gas Light Company's Special Order.

Board of Trade Debate, May 6.

In his annual review of trade prospects, Sir Philip Cunliffe-Lister made the following reference to coke oven gas:

We want to see better facilities for the production of coke, the use of gas, and the distribution of the gas to other industrial users. There is a real need for reconstruction in regard to blast furnaces and coke ovens. I have appointed a Committee, presided over by Sir Alexander Walker, to consider the definite question of the technical and economic aspects of a gas supply system consisting of pipelines connecting gas-works, coke ovens, and other gas producers with users over wide industrial areas. I think that this Committee, in which all interests are co-operating, are making progress, and already they have had the advantage of hearing evidence as to long-distance gas transmission in Germany.

At a later stage in the debate, Mr. A. V. Alexander made the following comment:

The Right Hon. Gentleman has set up an inquiry in regard to the development of the coal, gas, and steel industries in a kind of joint development in this country, and, apparently, the Committee will have as a basis for their inquiry the recent experience of these industries in Germany. I have read with a great deal of interest the development in this direction in Germany; but there is considerable doubt whether the same type of organized development can be applied in a country like our own. In Germany you have wide expanses of country, great distances from the coal centres, along which it would be profitable to convey gas by long lines. In this country the coalfields are spread very fairly over different parts, and you have a very important coastwise shipping trade for the conveyance of coal to local centres for gas manufacture. It is rather doubtful whether this country is as suitable for the development of long-distance gas lines, such as are now in use in Germany

Safeguarding of Industries (Gas Mantles).

Sir Walter de Frece asked the President of the Board of Trade whether his Department had any evidence to the effect that payments were being made to German gas mantle manufacturers to prevent their sending over gas mantles to this country.

Mr. H. Williams replied that he understood that, shortly after the imposition of the Safeguarding Duty, an agreement was made between the British manufacturers and the German Cartel which had been subsidizing exportation to Great Britain, as a result of which foreign imports into this country had been reduced to trivial proportions. Under that agreement certain compensatory payments were made to the Cartel by the British manufacturers.

MISCELLANEOUS NEWS.

COKE SELLING AT HALIFAX.

Catering for the Small Consumer.

The following, which is a reprint of a circular issued by the Halifax Corporation Gas Department, explains how the Department are catering for the small consumer of coke. The matter is referred to in our Editorial Notes in this issue of the "JOURNAL."

THE NEW SMOKELESS FUEL.

This is a new fuel. It is made by a new process.

It is an economical fuel for kitchen ranges or parlour grates. It heats water quickly, and is the best of all fuels for greenhouse boilers and central heating generally.

The price of a standard bag, including haulage and delivery to any part of the Halifax area of gas supply, is only 1s. 3d. Small sample bags may be had at the grocers' shop in your own district, or at the Gas Showrooms, Waterhouse Street.

This fuel is free from water—a cart load weighs about 12 cwt. and is delivered to any part of the Halifax area of gas supply at £1 or less, according to the distance from the gas-works.

Quotations for larger quantities and further particulars will be supplied on application.

This is a dry, free-burning fuel, and may be kindled with a gas poker or with paper and wood chips in the ordinary way. If the grate is shallow, it is better to start the fire with a few small pieces of house coal.

GASWORKERS AND INDUSTRIAL ORGANIZATION.

Assembly at Nottingham.

An assembly was held at Nottingham on Saturday, May 4, in connection with the Union of General and Municipal Workers, which, under its old title of the Gasworkers' and General Labourers' Union, owed its inception, 40 years ago, to Mr. Will Thorne, M.P., who established in Nottingham one of its first branches. The membership was recruited from among the employees of the Corporation gas undertaking. Among those present at the gathering were the Chairman and Vice-Chairman of the Gas Committee (respectively Alderman Sir Albert Ball and Councillor R. E. Achworth), and Mr. J. Wilkinson, the Engineer and Manager.

The immediate object of the meeting was the presentation of framed certificates to fourteen members of the Union who could claim to have maintained unbroken association with it since the time of its formation. In actual fact, however, it transpired that this number by no means represented all those who were entitled to a similar recognition, as the names of many had been received too late for inclusion on that occasion. The presentations were made by Mr. Thorne, who recalled the fact that the Union had started with 800 members, and that since then this number had been increased to 360,000. There were now 1500 branches of the Union, and the funds totalled £450,000.

Sir ALBERT BALL said that efficient carbonization of coal had a most important bearing upon the country's welfare, particularly in regard to the health of the community. He commented upon the value of contributory pensions schemes which enabled workers to be provided for in their old-age. When he became Chairman of the Gas Committee, over twenty years ago, there was not the same confidence between employer and employee that existed to-day. The workers were sufficiently well educated now to realize that they must do a fair day's work and then expect a fair reward.

Mr. J. WILKINSON referred to the gathering as one that was intended to show appreciation of loyalty. Knowing the conditions of the gas industry 40 years ago, the members had every reason to be proud of the record of the Union. He could remember when the ordinary shift lasted 12 hours, and the chain shift 18 hours. The pay of the stokers in those days was 4s. 10d. per day. No doubt conditions would have improved in any case, but they would never have attained their present position without trade unionism. He would be glad to see a 100 p.ct. membership.

Mr. ARTHUR HAYDAY, M.P., said that while there were only 12,000 members in the district, their loyalty could not be exceeded. Forty years ago the busiest department in the summer was the ambulance department, owing to the excessive conditions under which the men worked. He hoped that when trade improved the membership would reach the half-a-million mark. They wanted the strike weapon to recede, and reason and logic to come into freer play.

GAS PUBLICITY IN LIVERPOOL.

A Model House Organized by the "Liverpool Evening Express," and Equipped with Gas Appliances by the Liverpool Gas Company.

Wide publicity has been given to the value of gas in the home, as the result of a model house organized by the "Liverpool Evening Express" and opened by the Deputy Lord Mayor (Alderman William Muirhead) on May 1.

The house itself is a typical modern suburban dwelling on the outskirts of Liverpool. Advertisers in the "Liverpool Evening Express" have built, decorated, furnished, and equipped the five rooms, kitchen, sculley, dressing-room, bathroom, garden, garage, and revolving chalet in a complete manner. The house is ready for immediate occupancy; food, flowers, medicines, and toilet requisites all being at hand for use.

The Liverpool Gas Company have installed the gas appliances. A "St. Martin" radiator greets the visitor in the hall, and an all-enamel "Mersey" gas cooker with "Regulo" heat controller is provided in the kitchen. An "Economic" gas-heated wash-boiler is in the scullery. An "Alhambra" gas fire is fitted in one bedroom, and a "New Sunbeam" in another bedroom; while in the garage there is the "Balance" garage heater consuming only one therm in ten hours. There is a special gas burner, designed by the Liverpool Gas Company, in the cockloft or tank room which appeals very strongly to those in the district who suffered rather severely from burst pipes during the past winter, and who are looking round for some method of preventing a repetition of the trouble in the future. It is claimed that this specially-designed burner consumes only 4 c.ft. per hour, and that it can be left on safely and economically during any period of frost.

The object of the "Liverpool Evening Express" is to bring together in one house the latest appliances and ideas in connection with every phase of the home. Admission is free, but the organization is so arranged that the number of people admitted each day is under control. This guarantees that all who pay a visit to the house are permitted to inspect details in comfort, and no damage is done to the furnishings through over-crowding. The name and address of every visitor are recorded, thus building up a most valuable mailing list for the use of firms participating in the scheme.

A series of competitions, open to all visitors, is being run, with prizes to the amount of £60. An entry form is handed to each person on leaving the building, and answers to questions regarding the exhibit are invited. Typical questions are: Gas appliances are installed by .....? The gas heater in the garage is a .....? The gas cooker is a .....? This competition focuses the public mind on the suppliers and the names of the goods supplied; it leads to discussions among competitors, and provides most useful publicity for all exhibitors. Each competitor is invited to state where the prize money will be spent in the event of winning a prize, so that the information gathered under this heading will prove of additional interest, as showing in which direction the public are willing to purchase.

At a luncheon in the Adelphi Hotel prior to the opening ceremony, Mr. ALFRED BURCHILL, Managing Editor of the "Liverpool Evening Express," presented the Deputy Lord Mayor with a golden key with which to open the house; and the Deputy LORD MAYOR, in reply, commended the enterprise, saying that, as a result of the exhibition, more and more young people would see their way to setting up house economically and tastefully.

The enterprise has aroused keen interest locally, and is certain to have widespread results all over Lancashire. More than 2000 people visited the model house within the first two days.

GAS REGULATION ACT APPLICATIONS.

DECLARATION OF CALORIFIC VALUE.

Carmarthen Gas Company.—450 B.Th.U. (June 30.)

Lancashire towns demonstrate the fact that, wherever electricity is introduced, gas consumption increases to a greater degree than ever before. A large increase has been recorded at Chorley, where the gas-works annually provide a good profit towards rate reduction. During the last municipal year the increased output was 7½ million c.ft., the total being 262,754,000 c.ft., against 255,439,000 c.ft. for 1927-28.

COLOMBO GAS AND WATER COMPANY, LTD.

Annual Meeting.

The Annual General Meeting of the Company was held at 148, Gresham House, Old Broad Street, E.C., on Monday, April 29—Mr. Strachan C. Clarke (the Chairman) presiding.

The Secretary (Mr. A. C. Pullen) read the notice convening the meeting and the Auditor's report.

The Chairman said: A copy of the report and statement of Accounts having been sent to all the shareholders, I will ask you to take them as read.

On this occasion, I wish to preface my general remarks by alluding to the fact that our records show Mr. Wardrop, during the year under review, passed the fiftieth year of his connection with this Company. In 1878, when a young man—may I say a very young man—he was appointed to our Committee in Ceylon, and in 1903 he became a Director, serving for a time in the dual capacity, because at that period he spent part of his time in England and part in Ceylon. Just prior to the date when he became a Director, the Company saw its darkest hours, as in 1899 and 1900 we could pay no dividend on either preference or ordinary shares, and our sales of gas amounted to but 31 million c.ft. for the year. Memories are proverbially short, but I do wish to remind you that the sagacity shown by Mr. Wardrop in the course of local negotiations, coupled with the excellent work in London of one who is no longer with us, laid the sure foundation of the wonderful development which (in good hands) the Company's business and prosperity has shown in recent years. I shall again allude to this matter later.

At the last meeting I mentioned that the Government had purchased the plant of the Electric Company in Colombo; they have now opened a large station at Kolonnawa, which is also to supply electric current to the town, and there is still looming ahead the hydro electric scheme. I think therefore the renewal of our public lighting contract for five years speaks well for the good service rendered by this Company to the Municipality; and it is a pleasure to state that, as we had hoped, considerable extensions to the public lighting have been made since the new contract was settled.

During the course of the negotiations with the local authorities, we were helped very considerably by being able to fix here a new coal contract on better terms than before; and I may say that only recently we again extended the contract at an increase of but 2d. per ton, in spite of the firmer coal market in India.

Owing to the fact that in the last nine years we have increased our gas sales by more than 300 per cent., it has again been necessary to arrange for more carbonizing plant. The retort house is being extended, and additional retorts are to be added to those now in the house. Schemes for future further extensions on our present site are also under consideration, and the Board have constantly before them the question of acquiring more land.

On turning to the accounts, you will find that there is an addition of £19,751 for ordinary shares, which represents the issue to the holders of ordinary shares of one bonus share for every four held, in accordance with the resolution passed at the extraordinary meeting held in December last.

Debenture bonds account now disappears, as all outstanding debentures were repaid during last year. The formalities necessary for removing from the local registry the Trust Deed for securing debenture holders are having attention.

The addition to capital expenditure amounted to only £1116, which was principally for main laying.

The cost of coal was reduced by Rs. 20,591. We carbonized 1300 tons more, but the rate per ton was Rs. 3¼ less. The average make of gas per ton was about the same as in 1927—viz., nearly 20,000 c.ft. per ton.

Working expenses were slightly higher, maintenance of works and management accounting for this.

The cost of bad debts written off is very small and represents only one-twelfth of 1 p.ct. on the year's revenue. I again suggest that this reflects great credit on our staff.

"Maintenance of Cookers" is a new account, as it is desired to show this separately; it mostly represents labour involved in maintaining the gas cookers efficiently.

The amount for the Wellawatte Showroom is nearly Rs. 15,000 less, but the cost of the building and equipment was charged here in the previous year.

Bonus to local staff and workmen is slightly higher; we are always glad to see this figure increase. The provident fund for local staff shows a considerable proportionate addition, as a special grant to the native clerical staff was made *pro rata* to their years of service.

On the credit side of the revenue, gas rentals increased from Rs. 894,562 to Rs. 941,566. The increase of Rs. 47,004 is not so large as in 1927, but it is very satisfactory. We reduced our rates to ordinary consumers on Sept. 1, and for public lighting in April and September.

Residual products are somewhat down, in spite of the increased quantity of coal used. The price realized for coke was less, and that for tar was considerably down. The net revenue shows 84·6 p.ct. on the cost of coal. I have mentioned before that the very favourable return from residuals on the cost of coal is due to the Manager's close working at Colombo, coupled with the Secretary's efforts in the negotiations for coal.

The accounts grouped under "Gas Fittings Account" show in the total a diminution; but this is in accordance with the policy of the Board.

A new account appears in the London revenue—viz., "Reserve for Retort Renewals," £1125. We have decided to make such a reserve each year based on the tonnage of coal carbonized.

I am glad to say that we were able to increase our investments account. The balance-sheet shows that our cash, investments, stores, and debtors amounted to a total of £100,223; the cash liabilities were £28,540, showing a surplus of £71,683. The market value of the investments is higher than shown.

The capital expenditure on land and works (not reckoning with the depreciation account shown in the balance-sheet) stands at £320 per million c.ft. made, which is a very satisfactory figure.

I think these are all the comments I need make on the accounts, but shall be pleased to answer any questions thereon which you may care to put to me.

The balance of net revenue is £38,592, and the Directors recommend a final dividend of 3½ p.ct. on the preference shares, *less* tax, and a final dividend on the ordinary shares of 5 p.ct., free of tax, also that £20,000 be added to general reserve, which will then stand at £55,829, after allowing for the bonus shares issued at the end of 1928.

As to the current year's work, I am pleased to say that a further considerable increase has taken place in gas sales, amounting to 14 p.ct. to the end of March. The reductions in gas rates which I have mentioned will, of course, affect the whole of this year, instead of a portion of the twelve months as in 1928; but we look to the spreading of the business as a consequence of cheapening our prices.

I conclude my remarks, as usual, with a special reference to our Manager, Mr. Barker Johnson. He was on leave last year, but it was more or less what is termed a busman's holiday, as on most days he was here from morning until evening, or making visits connected with the Company's business to works and to manufacturers. I cannot speak too highly of the exceptional working results he achieves, of his schemes connected with our works and plant, or his propaganda for spreading the use of gas. The Board hope he will continue to serve the Company as Engineer and Manager for many years.

With these remarks, I have pleasure in moving that the report and accounts be received and adopted.

Mr. John G. Wardrop seconded the resolution and expressed his thanks for the personal allusion to himself in the Chairman's remarks. He, of course, had been connected with the Colombo Gas Company for over fifty years, and had seen the Company through its very bad times. It was a great relief to him when Mr. Phillips came on the scene and put in the regeneratives, certain arrangements being made with the Municipality regarding new gas mains.

The Chairman then moved the following resolution:

> That a dividend for the year ended Dec. 31, 1928, at the rate of 7 p.ct. per annum upon the preference shares, *less* income-tax, and 10 p.ct. per annum upon the ordinary shares, free of income-tax (*less* interim dividend off preference and ordinary shares paid on Oct. 11, 1928, and *less* interim dividend off ordinary shares paid on Dec. 7, 1928), be and is hereby declared, the warrants to be payable on May 4, 1929,

which was seconded by Mr. Robert H. Glen and carried unanimously.

The Chairman: I have very great pleasure in proposing the re-election of Mr. Robert H. Glen as a Director. His services and his advice on certain matters are extremely valuable to the Company.

The resolution was seconded by Mr. Alex. A. Johnston, who remarked that he wished to confirm what the Chairman had said. The motion was carried unanimously.

Major Heriot R. Glen proposed that Mr. William Cash, Junr., M.A., F.C.A., be re-elected as Auditor for the current year at the fee of seventy guineas, which was seconded by Mr. H. Gage Edwards and unanimously carried.

The Chairman proposed a vote of thanks to the staff in London and Colombo, also to the Local Committee. In the course of his remarks, he said: This vote is always a very great pleasure; as regards our Secretary here, he is a tower of strength. None of us like to be reminded that we are getting on in years; and I hope I shall not hurt his feelings in stating that he is in his forty-second year of service for the Company. I am sure he has done as much work in that time as many could have accomplished in a hundred. Regarding Mr. Barker Johnson and the Colombo staff, I have referred already to Mr. Johnson; and I know that, from him downwards, they have given successful service to the Company. The Company profit by the work of our Local Committee. I have much pleasure in proposing the resolution.

Mr. John G. Wardrop seconded the same, which was carried unanimously.

The Secretary said that he would be very glad indeed to convey the vote to Colombo. He knew Mr. Barker Johnson would be very pleased by the Chairman's appreciation of his work.

Mr. S. J. Tungay proposed a vote of thanks to the Chairman and Board of Directors, and said he would like them to accept the thanks of shareholders for all that had been done.

The Chairman: Before we conclude the business, I have taken the liberty on your behalf of having a small present prepared for our old and dear friend, Mr. Wardrop, as a mark of the shareholders' gratitude to him for his fifty years' association with the Company. I therefore ask Mr. Wardrop to accept this salver, the inscription reading as follows:

> Presented to John G. Wardrop, Esquire, by the shareholders of the Colombo Gas and Water Company, Ltd., as a mark of appreciation of services rendered to the Company over a period of fifty years.
>
> 1878-1928.

Mr. Wardrop: This is a very great surprise to me and I thank you very much. To me the great satisfaction is seeing the Gas Company go ahead; and I consider everyone concerned is to be congratulated.

The proceedings then terminated.

MERCHANDISE MARKS ACT INQUIRY.

Marking of Illuminating Glassware.

The inquiry into the application by the British glass manufacturers for an Order in Council under Part II. of the Merchandise Marks Act, requiring that imported glassware should bear an indication of its foreign origin, was continued on Monday and Tuesday, May 6 and 7, by the Committee appointed by the Board of Trade under the Act. [See "JOURNAL" for May 8, p. 357.]

Mr. E. A. *Hailwood* (Managing Director of Messrs. Hailwood & Ackroyd, Ltd., Glassware Manufacturers) gave evidence in regard to illuminating glass. He said that between 75 and 80 p.ct. of the illuminating glassware consumed in this country was imported. His Company produced about 20 p.ct. or more of the British output, and the works were so laid out that they could increase their output enormously. There was a distinct impression among many people that foreign glassware used for illuminating fittings was British. A number of the large British firms producing illuminating fittings did not make their own glass, but imported a good deal, and because the fittings were made by British firms it was assumed that the glassware in those fittings was British also. There were no indications in the catalogues of those firms that the glass was foreign. There was also difficulty sometimes in convincing buyers that British glass was in fact British, because buyers had the idea that such glassware could not be made in this country. He attributed this to the fact that the British glass makers had been working for many years under a cloud, owing to the domination of the market by the large quantities of glassware imported. After exhibiting samples to demonstrate the similarity between the foreign and British glassware in the absence of marks, he said that his Company marked their glassware, but the foreign manufacturers did not, and there was an increasing importation. It was the practice of his Company to invite their customers to visit the works and to see the glassware made, if they had any doubts as to whether or not it was possible to make the glass in this country. Marking would not damage the glass, and it was important that it should be marked. The country had spent half-a-million pounds to urge the people to buy British goods; that was having its effect, and people wanted to know what they were buying.

Witness, in reply to the CHAIRMAN, said his Company made illuminating fittings as well as the glassware, but far more of the glassware was sold separately than was sold with the fittings. Dealing with a suggestion made by the opponents, that if imported glassware had to be marked, extra work would be entailed upon the Customs authorities in examining it to ensure that it was properly marked, he said it seemed absurd to talk of the heavy burdens on the Customs authorities, in view of the fact that there were over a million men out of work. Even if it did entail extra work upon the Customs, there were a lot of Civil Servants, and he suggested it would be a good plan to transfer some from the labour exchanges to the ports. He had never found that the foreigners considered Britain at all, and it was absurd to talk as they did on this matter. Referring to a suggestion that British firms had been asked to make three-ply glass, but could not make it satisfactorily, he said that the people who usually bought from abroad did not give the British articles a fair examination, but searched deliberately for defects. It was merely an excuse to say that the British manufacturers could not make it.

Witness, cross-examined by Mr. N. L. MACASKIE (Counsel for the opposition), said his Company had been making coloured illuminating glassware since 1922. At the Wembley Exhibition in 1924 there was the finest show of coloured glassware ever seen, and from that time the foreign manufacturers had copied the British designs.

COUNSEL, on this question of copying, suggested that the British manufacturers had copied foreign designs.

Mr. *Hailwood*, at first, denied that his Company did so, and added that they had their own staff for the purpose. Later he admitted that, the foreign manufacturers having copied the British, the British had copied the foreign, and would do so again if they got the chance.

Mr. MACASKIE: I thought the cat would come out of the bag sooner or later.

The CHAIRMAN said the point to be considered was whether the British and foreign could be distinguished.

Mr. MACASKIE said the witness had made a number of remarks which reflected upon the opponents. For instance, he had said that British manufacturers of lighting fittings were using foreign glass and taking credit, apparently, for making it, and he had also said that his designs were being copied by the foreign manufacturers. Counsel suggested that Mr. Hailwood be restrained from making allegations and electioneering speeches.

The CHAIRMAN replied that they would not affect the minds of the Committee.

Mr. *Hailwood* said he did not assert that the British manufacturers of fittings had deliberately set out to deceive, but that people assumed that the glass was British if it were not marked.

Witness, replying to a suggestion by Mr. MACASKIE that the marking of the glass as foreign in a fitting which otherwise was British would suggest to the buyer that the complete fitting was foreign, said that it could be indicated that the fitting itself was British. If the manufacturers did not wish to mark the glass, let them use British. It would not cost them much more, if anything at all.

Questions were asked as to the cost of marking opal and coloured glass.

Witness replied that his Company paid from 1½d. to 1¾d. per 100 for sand-blasting a name on small articles, 3d. per 100 for medium size articles, and 4½d. per 100 for the large sizes. They paid 4½d. per dozen for transfers.

Witness objected to the marking of the glassware by means of adhesive labels as suggested by the opponents, on the ground that the labels would become detached as the result of handling.

COUNSEL, as a parting shot, suggested that witness really wished to rely upon the prejudice which might be produced as the result of the foreign marks.

Witness replied that his object was to create work for the British people.

The inquiry was adjourned until Monday, May 13.

CROYDON GAS COMPANY.

Annual Gathering of Co-Partners.

The flourishing state of the Croydon Gas Company Co-Partnership was well in evidence at the North End Hall, Croydon, on Monday, May 6, when the seventh annual co-partnership meeting and social evening was held. Mr. WILLIAM CASH, Chairman of the Directors, presided, and submitted the annual report and accounts.

ADVANTAGES OF CO-PARTNERSHIP.

Mr. WILLIAM CASH said that no one claimed that co-partnership was a cure for all ills, but they did say that it brought together those connected with the management and those carrying on as officers and workpeople; all were brought together, and got to know one another in a way that would not happen except in this organization. Undoubtedly co-partnership meant true co-operation, and, through co-operation, led to efficiency, and gave that human touch of common relationship which in big undertakings such as theirs was difficult to maintain. The hospital fund was making splendid progress. They were able to collect approximately £250 during the year, which was really a valuable contribution. A matter which was considered at the recent meeting of the Co-Partnership Committee was the question of the investment in the stock of the Company. When he expressed regret that the amount was not larger than it is, one member said that many men availed themselves of the opportunity of paying into the co-partnership fund because the interest was as high as 5 p.ct. and the money was easily withdrawn. What he did want to say was that if they preferred to buy stock in the Company, there were facilities offered for realizing that stock at any time should there be necessity. If they had purchased stock a year or two ago they would have realized a substantial improvement, because it had gone up to an appreciable extent. The return on that stock to-day was about 6¼ p.ct., so they could do even better than by leaving money on deposit with the Company.

He was glad to see that a larger number of members had subscribed to the sports fund, but the Committee were very anxious to obtain more subscribers. The Company had provided a very fine sports ground at Waddon, and he thought the ground should be used more than it was.

ANOTHER INCREASE IN BONUS.

Turning to the report and statement of accounts, the Chairman said that there were 949 co-partners—the largest number they had ever had. It was 19 more than a year ago; and when one allowed for the fact that there had been 31 withdrawals, one death, and 10 pensions, it meant there were 61 new members brought in during the year. Another satisfactory feature was that the rate of bonus was 7 p.ct.—the highest they had touched yet. Last year it was 6¾ p.ct. The total amount of bonus—£11,907—was the largest sum they had ever divided. The amount invested by co-partners in Company's stocks this year was £762. This was a figure to which he wished to draw special attention, because it was relatively small this year. The total amount of stock was £27,000. That figure, which he would like to see bigger, did not compare very favourably with some of the larger companies.

Last year there were thirteen long service awards, and this year they had ten. The annual sports last year, he continued, were a very great success, and the date of the sports this year was July 6. With reference to the details of the hospital fund, they had given away in subscriptions £232, and though the Committee seemed to have a large balance in hand, another year's subscription would be paid out of that. The balance to the credit of co-partners at March 31, 1928, was £26,569, and the voluntary savings of co-partners were £9114. On the other side were investments in Company's stocks amounting to £762; amounts withdrawn, £9133; bonus transferred to pension fund, £6611; and the balance to the credit of co-partners at March 31, 1929, was £32,322. This was an increase of £5700, which was highly satisfactory. The pension, widows', and orphans' fund showed the largest figures. The year started with £163,903. The Directors of the Company were still continuing to double the employees' subscriptions, and then adding the sum of £10,000 as a special contribution in order to overtake the position which it

had been calculated by actuaries they ought to aim at. For every £1 contributed by employees the Company contributed another £1, and, in addition, added a sum of £10,000. The figure for interest went steadily up, as it ought to as the fund grew. A sum of £5750 had been paid in pensions, and £1382 for resignation of members. The fund had grown from £163,900 to £195,245, and was now within measurable distance of the £200,000 mark. In addition to the sum of these pensions paid out of the fund, there were also annuities paid to widows of employees direct, in recognition of past services. Out of the £195,000, a sum of £94,200 was invested in funds outside the Company altogether. The Directors were now making a further issue of debentures, and some part of that money would be used to invest on behalf of the trustees. There were further sums due to this fund. They were very anxious that this fund should be perfectly stable and secure.

The Company's Progress.

The Company's business had grown very rapidly. In 1927, the increase in the sale of gas was about 100 million c.ft., and in 1928 the increase was about 48 millions. In 1929, owing to the extraordinary weather in the months of January and February and part of March, they had an enormous demand on their resources at Waddon. Up to April 28, they were 185 million c.ft. ahead of last year. In four months this year they had eclipsed the 48-million and the 100-million increases of the two previous years.

These figures showed that their business was really a steadfast one. It meant great stress and strain to plant, machinery, and employees and officers. In one day of 1928 they reached a record of 13½ million c.ft., but in one day of February this year they touched 16 millions. It was a great source of gratification to the Directors, and proprietors also, to pass a vote of thanks. They were indebted to the staffs on the district, at the works, and in the office for the splendid work they put in, and which enabled the demand to be met so satisfactorily. In three consecutive days—Feb. 13, 14, and 15—there were increases of over 70 p.ct. and 63 p.ct.

They were building new showrooms and a district depôt at Waddon. They had recognized that the accommodation there was not adequate, and an effort was made to get the necessary facilities for carrying on the work. They acquired some property a long time ago, but, in consequence of certain conditions arising from the Rents Restriction Act, they could not get possession; but the work was now in hand. They had also bought premises at Caterham, and these were being converted into a showroom and district depôt. In addition, they had purchased a new site at Brigstock Road, and this also was being converted into a district showroom. They hoped that by the end of this year the various premises would be in use.

Long-Service Awards.

Mr. Cash then presented long-service awards to the following: Messrs. W. H. Allsop, F. Bishop, S. H. Ching, J. Hartfield, T. Holland, H. A. A. Robinson, E. Rumsey, H. Simmons, W. Stanton, and W. J. Titchener, who have all served the Company for 25 years.

Mr. Sidney Hepworth (Chairman of the Works Committee) said he had very great pleasure in proposing a vote of thanks to their Chairman for the very clear and interesting manner in which he had put before them their co-partnership statement for the past year. He was sure that the co-partner employees appreciated the fact that they had as Chief Officer of the Company a man who was at heart a co-partner. They who were members of the Works Committee had many opportunities of proving that fact. They knew that their Chairman was keenly interested in co-partnership and the welfare of the employees. He always attended the joint meetings, and when he found it difficult to attend he asked for the date of a meeting to be altered. They always saw him at their annual sports and at the social evening. He did not attend those functions just to give them an official air, but because he wished to be there.

Mr. Cash, in reply, said he would like to express his sincere thanks for the kind remarks of Mr. Hepworth, who had rightly interpreted his views with regard to co-partnership. It was a matter he had at heart, and he was glad to be associated with it. He believed it did a great deal both for employees and employers. It was a matter of education for the masses of the country at large. Education was undoubtedly progressing, and the people were taking interest both in social and economic matters in a way that was not known a few years ago. He concluded by wishing them all a happy evening and a prosperous year for 1929.

During the evening refreshments were served, and an entertainment was given by a concert party.

NOTTINGHAM GAS DEPARTMENT.

Annual Report.

The general accounts of the Nottingham Gas Department for the year ended March 31, 1929, will be found in the "Journal" for May 1, p. 290. The report of the Committee, of which Sir Albert Ball is Chairman, goes on to state that there have been pleasing increases in income from sulphate of ammonia, &c., of £5417, and of £2493 from stove materials. The increase in the sales of gas was small, though 3375 new services were connected. The Committee has under consideration a scheme for the supply of 1,500,000 c.ft. of coke oven gas per day from the Pinxton Colliery. A contract has been placed for the erection of a 5-million c.ft. capacity spiral-guided gasholder on a site at Radford adjacent to the existing works.

Mr. John Wilkinson's Report.

Appended to the Committee's statement is the annual report of Mr. J. Wilkinson (Engineer and General Manager), which states that during the period under review 218,816 tons of coal and 230,421 galls. of oil were utilized in course of manufacturing 3,017,563,000 c.ft. of coal gas and 105,790,000 c.ft. of water gas, making a total of 3,123,353,000 c.ft. The quantity of tar (water free) distilled at Basford during the year was 2,179,774 galls. The Giltbrook Chemical Works produced 3028 tons of sulphuric acid (100 p.ct.). At the Basford Ammonia Works the equivalent of 37,513 tons of 10-oz. ammoniacal liquor was distilled during the year, which produced 2954 tons of sulphate of ammonia.

The following are the details of the sales of gas, gas unaccounted for, and gas sold per ton of coal carbonized:

	C.Ft.		Therms.
Ordinary consumers	1,393,583,800	..	6,619,524
Prepayment ,,	1,024,936,800	..	4,868,450
Power ,,	191,671,800	..	910,441
Industrial ,,	139,706,100	..	663,003
Public lamps	170,543,800	..	810,083
Totals	2,920,442,300	..	13,872,101

These figures indicate an increase of 2,862,900 c.ft. (13,599 therms), or 0·10 p.ct., when compared with the sale of gas, 2,917,579,400 c.ft. (13,858,502 therms) for the previous year. The gas unaccounted for during the year was 202,910,700 c.ft., or 6·50 p.ct., as compared with 132,208,600 c.ft., or 4·33 p.ct., for the previous year. The sale of gas per ton of coal carbonized was 12,895 c.ft. (61·2 therms), as compared with 13,151 c.ft. (62·5 therms) for the previous year. The total length of mains laid at March 31 was 480·3 miles. The number of meters fixed at March 31 (excluding 423 lamp meters) was 103,932, being an increase of 2587 meters on the previous year. Of these, 102,891 are owned by the Gas Department and 1041 by the consumers. The average consumption per meter (exclusive of lamp meters) equalled 26,181 c.ft. (124·4 therms), as compared with 26,926 c.ft. (127·9 therms) in the previous year. The position of gas in its application for trade and domestic purposes has been maintained; according to official records, there were in use at March 31 62,829 gas cooking stoves and 31,002 gas fires. These figures do not include a number of cooking stoves, fires, and other appliances of various descriptions which have been purchased privately by the consumers, and not recorded in the books of the Department.

CURRENT SALES OF GAS PRODUCTS.

The London Market for Tar, Tar Products, and Sulphate.

London, *May* 13.

There is little change to report in the tar products market.

There is still good inquiry for pitch for next season, and the price is firm at 35s. to 36s. per ton, f.o.b.

Creosote is unchanged at 6¾d. per gallon net, f.o.b.

Pure benzole is 2s. per gallon; pure toluole, about 2s. 2d. per gallon; and 95/160 solvent naphtha, about 1s. 7d. per gallon.

Pyridine is about 4s. per gallon.

Tar Products in the Provinces.

May 13.

Markets for tar products are still quiet.

Pitch.—The market is distinctly firmer. There is still a fair amount of inquiry, but manufacturers are not disposed to do business at present. For prompt delivery small parcels are sold from time to time at comparatively low figures, but for delivery next season it is possible to obtain a fair premium.

Creosote oil is still very dull, and it is almost impossible to sell oil which does not fall within the standard specifications.

Water-white products are quiet; but manufacturers hope for an improvement in demand before very long.

Carbolic acid is distinctly firmer, and consumers are now prepared to pay 2s. for either prompt or forward delivery.

Crystals carbolic are firmer, and manufacturers are now asking 6¾d. per lb.

Cresylic acid is still very quiet, and prices are maintained with difficulty.

Creosote oil. Some quantity of inferior creosote has been sold for burning purposes at under 2½d. per gallon.

The average prices of gas-works products during the week were: Gas-works tar, 18s. to 23s. Pitch—East Coast, 33s. 6d. to 34s. 6d. f.o.b. West Coast—Manchester, 28s. 6d. to 29s.; Liverpool, 30s. 6d. to 31s. 6d.; Clyde, 30s. 6d. to 31s. 6d. Toluole, naked, North, 1s. 7½d. to 1s. 8½d. Coal-tar crude naphtha, in bulk, North, 9d. to 10d. Solvent naphtha, naked, North, 1s. 3¾d. to 1s. 4½d. Heavy naphtha, North, 1s. to 1s. 0½d. Creosote, in bulk, North, liquid or salty, 3½d. to 3¾d.; low gravity, 2½d. to 2¾d.; Scotland, 3½d. to 3¾d. Heavy oils, in bulk, North, 5½d. to 6d. Carbolic acid, 60 p.ct., 1s. 10d. to 1s. 10½d., prompt. Naphthalene, £13 to £15. Salts, £5 to £5 10s., bags included. Anthracene, "A" quality, 2½d. per minimum 40 p.ct., purely nominal; "B" quality, unsaleable.

Correction.—In the "Journal" for May 1, p. 290, the quotation for creosote should have read: Creosote, in bulk, North, liquid or salty, 3½d. to 3¾d.; low gravity, 3d. to 3¼d.; Scotland, 3½d. to 3¾d.

Benzole Prices.

The following are considered to be the market prices to-day:

	s. d.		s. d.	
Crude benzole	1 0	to	1 1	per gallon at works
Motor ,,	1 7	,,	1 8	,, ,, ,,
90 p.ct. ,,	1 9	,,	1 10	,, ,, ,,
Pure ,,	2 0	,,	2 1	,, ,, ,,

COAL TRADE REPORTS.

From Our Own Correspondents.

NORTH-EAST COAST.

The market, especially for Durham coals, is keeping up in remarkable fashion, and, in spite of the season, inquiry and demand have, if anything, improved in the past week. Very considerable quantities of coal have now been sold over the rest of the year, and many collieries have little available for sale, so that prospects are for a maintenance of good prices.

The unfortunate stoppage at one of the Wear Special collieries persists, so that quantities are still below normal; but this cannot entirely account for the present strength of better-class gas coals. Specials are quoted at 16s. f.o.b., and best qualities are in good demand at 15s. 9d. to 16s. Good seconds have been harder if anything, and 15s. to 15s. 6d. is asked. Coking seems as scarce as ever, and 15s. 9d. to 16s. is readily obtainable for prompt cargoes. Durham unscreened bunker sorts are in good request both for home bunkering and for coaling stations. Best qualities quote 16s. to 16s. 6d., and seconds are 15s. to 15s. 3d. Northumberlands are mostly finding sufficient trade, though not so readily as Durham. Best screened steams are 14s. 6d.

There has been a slightly improved demand for gas coke, which is quoted at 19s. 9d. f.o.b. for shipment.

YORKSHIRE AND LANCASHIRE.

The position in the Yorkshire and Lancashire coal trade is little altered from that of last week, business in all descriptions of fuel being quiet. The reduced output in gas coal seems to be equal to the present demand. A reduced inquiry for large steams has brought the price down to 16s. 6d. to 16s. 9d. Owing to the approach of warmer weather the house coal demand is reduced. Industrial coal is fairly steady, as is the furnace coke demand, the latter with quotations of 20s. per ton f.o.b. Rough slacks are in less demand, and there is less pressure for delivery of coking slacks. The export section shows no alteration.

The following are the Humber bunker and export prices (f.o.b. usual shipping ports):

South Yorkshire—Hards, Association, bunkers 19s. 9d. to 20s. 3d., export 16s. 6d. to 16s. 9d.; screened gas coal, export 17s. to 17s. 6d.; washed trebles, export 16s.; washed doubles, bunkers 19s., export 15s. 6d.; washed singles, export 14s. 6d. to 15s.; washed smalls, bunkers 15s. 3d., export 12s. to 12s. 6d.; rough slack, bunkers 13s. 6d. to 13s. 9d., export 11s. to 11s. 6d.; smithy peas, export 17s. to 18s.

West Yorkshire—Hartley's (f.o.b. Goole), bunkers 17s. 6d., export 15s. 6d. to 16s.; screened gas coal, export 17s.; washed trebles, export 15s. 6d. to 16s.; washed doubles, export 15s.; washed singles, export 14s. 6d.; washed smalls, bunkers 14s. 9d., export 11s. to 11s. 6d.; unwashed trebles, export 15s. 6d. to 16s.; unwashed doubles, export 13s. to 13s. 9d.; rough slack, bunkers 13s. 6d., export 9s. 6d. to 10s.; coking smalls, export 9s. 6d. to 10s.

Derbyshire and Nottinghamshire—Top hards, bunkers 19s. 9d. to 20s. 3d., export 16s. to 17s.; cobbles, bunkers 18s. 9d. to 19s. 3d., export 15s. to 16s.; washed trebles, export 15s. 6d. to 16s.; washed doubles, export 14s. 9d. to 15s. 3d.; washed singles, export 14s. 3d. to 14s. 9d.; washed smalls, bunkers 15s. 3d., export 11s. 6d. to 12s.; unwashed doubles, export 14s. to 14s. 6d.; rough slack, bunkers 13s. 3d. to 13s. 9d., export 9s. 9d. to 10s. 6d.

Yorkshire, Derbyshire, and Nottinghamshire—Screened steam coal, bunkers 17s. to 18s., export 15s. to 16s.; gas coke, export 19s. 6d. to 21s. 6d.; furnace coke, export 20s.; washed steams (Goole, West Yorkshire), bunkers 18s.; (Hull, West Yorkshire), bunkers 18s. 6d.; (Hull, South Yorkshire), bunkers 18s. 9d., export 16s.

MIDLANDS.

More equable conditions have supervened now that the miscalculations and dislocations of April have been got rid of. Collieries which can put good tough grades of house coal on the market are taking measures to encourage summer stocking. Since the general revision of prices with which May was ushered in, further concessions of 1s. to 1s. 6d. have been offered as an inducement to consumers and merchants to place orders for such coals as will not deteriorate in the stack.

Market conditions generally are steady. At most of the pits output has been adjusted to the declining demand for household qualities. Prices of industrial fuel are upheld. Few spot lots are being pushed, certainly not enough to threaten disorganization. With less slack coming forward equilibrium has been restored between supply and demand. Quotations range from 5s. up; good nutty slacks being saleable up to 8s. Beans command 9s. to 11s., "D.S." nuts 11s. to 14s. Coking slacks are inquired for, but the supply is meagre.

The easing of the market for blast-furnace cokes is indicated by transactions at 14s. 6d. to 15s. Supplies are still anything but free, however. The shortage in basic pig is being overcome.

Big U.S.A. Power Company Deal.—It is reported from New York that the Associated Gas and Electric Company have acquired the Rochester Central Power Corporation and its affiliated Companies, with combined annual earnings of approximately $29,000,000. The unit thus added to the Associated Gas and Electric Company's system, which serves six important areas in the United States, covers territory from the Northern Pennsylvania line to Lake Ontario, and links up with other properties recently acquired. Permission to deal in class "A" stock of the Associated Gas and Electric Company, it is announced, was granted by the Committee of the London Stock Exchange on May 8.

TRADE NOTES.

Gibbons' Retorts.

The Swadlincote Urban District Council have accepted the tender of Messrs. Gibbons Bros., of Dudley, for resetting No. 5 bed of retorts.

The North-East Coast Exhibition.

Messrs. Wailes Dove Bitumastic, Ltd., inform us that their stand at the North-East Coast Exhibition, being held in Newcastle-on-Tyne from May 14 to Oct. 31, is situated in the Palace of Engineering—Stand No. 590—Avenue G.

Swindens Revolving Head Vice.

With reference to the description of the Swindens Patent Revolving Head Vice in the "JOURNAL" for May 1 (p. 280), the makers, Messrs. Abbott, Birks, & Co., of 113, Newington Causeway, S.E.6, state that they are supplying these vices to many gas undertakings in all parts of the country.

New Gasholder for Malvern.

The Ministry of Health recently held an inquiry into an application of the Malvern Urban Council to borrow £13,600 for the provision of a new gasholder at Malvern Link. The Ministry have since expressed a wish that tenders for this work should be advertised. This was done, and sixteen tenders were received. The Committee have recommended that the tender of Messrs. Newton Chambers & Co., Ltd., be accepted, subject to the approval of the Ministry of Health.

Blackman Ventilating Fans.

Good ventilation is absolutely essential to industrial efficiency all the year round. If workers are confined for long hours in badly ventilated workshops, reduced efficiency and lower production are the inevitable results. Blackman ventilating fans ensure a continuous supply of fresh air to all parts of the building, and maximum efficiency and output naturally follow in the resultant healthier atmosphere. Messrs. James Keith & Blackman Company, Ltd., of 27, Farringdon Avenue, E.C. 4, will be pleased to give their expert advice on any matters relative to the ventilating of business premises.

The Morris Versatile Crane.

Messrs. Herbert Morris, Ltd., of Loughborough, have brought out a portable jib-crane of new and original design. It is suitable for every kind of lifting, shifting, and transporting work, and can rotate round the load, rotate round its own axis, rotate round its rear wheel, and travel forwards or backwards, as well as sideways. In practically every job of handling, the makers claim, the crane cuts out at least one movement, and in most jobs it cuts out three or four movements with a consequent saving of time. The crane can lift a load of 14 cwt. at a distance of 16 ft. from the front wheel, or a load of 2½ tons at 5 ft. 6 in. It will lift 1 ton at 40 ft. per minute, and the 2½ ton load at 35 ft. per minute. The travelling speed of this crane is about 350 ft. per minute, depending somewhat on the kind of ground.

Thomas Recording Calorimeters.

The Cambridge Instrument Company, Ltd., of London and Cambridge, have recently received an order from the Gas Light and Coke Company for fifteen Thomas recording calorimeters, eight of which are to be equipped with duplicate recorders, making a total of 23 recorders in all. A Thomas calorimeter was supplied some months ago to the Fulham Works of the Gas Light and Coke Company, and it is as a result of the successful operation of this instrument that this large order, and also a separate order for a Thomas calorimeter at the Nine Elms Works, have been placed, making a total of seventeen instruments ordered by this Company. As far as the makers are aware, with the exception of nineteen Thomas calorimeters ordered by the Consolidated Gas Company of New York, this order for fifteen instruments is the largest for recording calorimeters which has ever been obtained.

CONTRACTS OPEN.

Tar.

The Gas Committee of the Mansfield Corporation invite tenders for the purchase of surplus tar. [See advert. on p. 426.]

Lime and Sulphuric Acid.

The Gas Committee of the Mansfield Corporation invite tenders for the supply of lime and sulphuric acid. [See advert. on p. 426.]

Station Meters.

The Gas Committee of the City of Plymouth invite tenders for the supply, delivery, and erection of two station meters. [See advert. on p. 426.]

Carburetted Water Gas Plant.

The Gas Committee of the Burnley Corporation invite tenders for the supply and erection of a carburetted water gas plant. [See advert. on p. 426.]

Coal.

The Skipton Gas Department invite tenders for the supply of gas coal. [See advert. on p. 426.]

The Teignmouth Urban District Council invite tenders for the supply of gas coal. [See advert. on p. 426.]

The East Dereham Urban District Council invite tenders for the supply of gas coal. [See advert. on p. 426.]

The Gas Committee of the Mansfield Corporation invite tenders for the supply of gas coal, &c. [See advert. on p. 426.]

Road Development Company, Ltd., has been registered as a public Company, with a nominal capital of £460,000, for the purpose of manufacturing and dealing in asphalt, tar, pitch, &c.

South African Lighting Association, Ltd.—At a meeting of the Directors held on May 8, it was resolved to pay a dividend of 4 p.ct., *less* income-tax at 2s. 6d. in the pound, for the year ended Dec. 31, 1928, such dividend to be payable on June 5.

New Exhauster Plant for Newport.—The Newport (Scotland) Town Council, at a meeting on May 7, agreed to the purchase for the gas undertaking of a new exhauster plant at the cost of £302, and also decided that new offices should be erected at the gas-works at the cost of about £360.

Tenders for Horsham Share Issue.—The tenders for the 535 £10 "B" ordinary shares which were offered by Messrs. A. & W. Richards, of 37, Walbrook, E.C. 4, on behalf of the Directors of the Horsham Gas Company (see "JOURNAL" for May 1, p. 290), were opened on May 9, the issue being over-subscribed at prices ranging from £11 5s. per share down to the minimum of par.

Montevideo Gas and Dry Dock Company, Ltd.—The Directors of the Montevideo Gas and Dry Dock Company, Ltd., recommend a final dividend of 4½ p.ct., free of income-tax, payable on May 29, on the ordinary stock of the Company, for the half-year ended Dec. 31, 1928, and making, with the interim dividend previously paid, 7 p.ct., free of tax, for the year 1928, compared with 6 p.ct., free of tax, for the preceding year.

Darwen Gas Department Report.—Reporting a profit of £5115 on the Gas Department for the year, at a Darwen Town Council meeting, Alderman Pickup said that the yield of gas per ton of coal carbonized had been 630 c.ft. more than last year. They had sold 3,280,600 c.ft. less gas, though leakages had been reduced by 2·12 p.ct. The price of gas, he said, was high, and, in his opinion, a reduction would help to increase consumption. Compared with 1928, sales were down by £1022.

Birmingham Gas Examiner's Report.—In his first report as Official Gas Examiner of Birmingham, Prof. F. W. Burstall, of Birmingham University, states he has put into force the gas testing in accordance with the Gas Acts of 1920, and the special instructions issued by the Gas Referees specifying the number of tests to be carried out in Birmingham. All the gas testing stations, he states, are equipped in exact accordance with the regulations, and the apparatus has worked correctly during the past quarter. The average calorific value for the whole four of the stations based on the number of tests as laid down by the Gas Referees was 477·1 B.Th.U. per c.ft., when reduced to standard conditions of temperature and pressure. The declared value of the gas set up by the Gas Referees to the Birmingham City Council was 475 B.Th.U. per c.ft., when reduced to standard conditions of pressure and temperature. In no single test made throughout the quarter had the gas had such a value as to exceed the limits of variation laid down by the Gas Referees.

Gas Fire Installation Question at Kelty.—The question of gas fires in certain of the County Council houses in Kelty occupied the attention of Dunfermline District Committee at their monthly meeting on May 8. The matter arose out of an application by the tenants of three-apartment houses for the installation of gas fires in the small bedrooms. It had been remitted back from the last meeting. Mr. R. W. Wallace, the Chairman, said he could not see any way of complying with the request. Mr. J. Sneddon, Kelty, who raised the question in the first place, said it had been obvious there had been an objection to this all along. He was very disappointed, as there was a necessity for some such sort of fire. The Chairman said he had seen the houses. Specifications were cut to the least possible figure so as to secure that the cost would conform to a rent which would be within the reach of the tenants. It was unfortunate that in those houses one room was without a fire, but he was of the opinion that he should not like to see gas fires introduced as had been proposed, because he did not think they would be satisfactory, and, furthermore, the most serious objection of all was that the Board of Health absolutely refused to allow any part of the cost of such an alteration.

Stafford Gas Profits.—Councillor G. Owen (Chairman of the Gas Committee of the Stafford Town Council) presented a very satisfactory annual report on the gas undertaking at a meeting of the Council recently. He stated that the gross profit for the year was £18,723, an increase of £2083 on the previous year, due mainly to a decrease in expenditure of £4053. The net profit was £9847, and, with the balance from last year, made a total of £10,935, of which it was proposed to allocate £3000 to reserve fund and £3800 to renewals fund, leaving £4135 to be carried forward. During the year 19,318 tons of coal were carbonized, resulting in an increased gas make of 250 c.ft. per ton. New consumers for the year totalled 191, and 496 yards of new mains had been laid, bringing the total length up to 61·9 miles. During the year 313 gas fires, 195 cookers, 62 wash-boilers, and 63 geysers were fixed, while 539 cookers, grillers, fires, &c., were cleaned, repaired, and re-fixed. The Committee had decided to reduce the price of gas by 2d. per 1000 c.ft., as from the September readings of the meters, to those consumers who were now paying 3s. 2d. and over per 1000 c.ft. Councillor Owen congratulated the Engineer (Mr. Poulson) and his staff on the excellent working of the Department during the year. Alderman F. E. Read said it was the first time that the price of gas had been reduced and everybody had not shared in it. He thought it was of vital importance that the large consumers should have the benefit of any reduction as well as the smaller ones. The report was, however, adopted, and the reduction in the price of gas agreed to.

Cape Town Gas Company Report.—The Directors of the Cape Town and District Gas Light and Coke Company submit the following report for the year ended Dec. 31, 1928. The balance at the credit of the revenue account is £21,863, which, together with the amount of £4342 brought forward from the previous year's accounts, makes a total of £26,206. Deducting therefrom the dividend on preference shares paid in May and November last, the interim dividend on the ordinary shares paid on Dec. 1, and the amounts transferred to reserves, there remains a balance of £8206, out of which the Directors recommend the payment of a final dividend on the ordinary shares at the rate of 4 p.ct. (making 7 p.ct. for the year, with the interim dividend already paid). This will absorb £4000, and leave to be carried forward to next year's account the sum of £4206. The volume of gas sold increased by 8·7 p.ct. for the year, and, notwithstanding lower average prices, residuals sales revenue was maintained. New consumers totalled 285.

Gas Company Pay Damages for Accident.—In the Southwark County Court, on Monday, May 6, before Judge Moore, Alfred Thomas Bennett, a child aged eight, claimed £25 damages from the South Metropolitan Gas Company for personal injuries as the result of the negligence of the defendants' servants. Mr. Edric Philcox, on behalf of the plaintiff, said that the case had been settled, and, in fact, had only been brought up in order for his Honour to approve the settlement. Last October, there was a Shopping Week in Bermondsey, and, as a consequence, the traders used various flags, bunting, &c. The boy was looking at these flags, when he fell down a cellar flap of a public house, where the Gas Company were doing some work. Undoubtedly, the boy was not looking where he was going, as his attention was attracted, but the flap was unguarded, and he sustained concussion of the brain. So far as could be medically tested, the boy was cured, and no after-effects were anticipated. It appeared that men were working there at that time, but at the precise moment they were not standing by the cellar flap. The defendants had paid the £25, and he asked approval of the settlement. Judge Moore approved the settlement, and also granted an application for the payment of £5 to the father of the boy, who had had certain expenses to meet, and His Honour also ordered that the balance of £20 should be invested for the benefit of the boy.

The Swadlincote Urban District Council are making arrangements for the holding of a gas exhibition at the Town Hall from June 19 to 21 next.

In the final for the Deal and District Nursing Cup, the Deal and Walmer Gas Company's S.C. beat the Depôt R.M. "A" team by 3 goals to 1, on Saturday, April 27.

The Leeds Fireclay Company, Ltd., in their report for the year, announce the declaration of interim dividends at the rate of 6 p.ct. on the preference shares, and 4 p.ct. on the ordinary shares, *less* tax.

The Deal Gas-Works Football Club (the winners, for the second time in succession, of the Deal and District Junior League) lost to a team representing the "Rest of the League" by 2 goals to *nil* on Thursday, May 2.

A gas explosion occurred in a house at Davyhulme, near Manchester, on April 28, blowing out two walls, breaking most of the windows, and doing extensive damage. The explosion took place when a match was lighted to start an ordinary coal fire. One occupant was conveyed to hospital suffering from burns.

Three men were gassed, one fatally, while engaged on repair work in a gasholder at the Newtown Works of the Manchester Corporation Gas Department. The men were working for a firm of contractors, and the dead man is Albert Willis (50), while Patrick Connell, of Clayton, and Mark Cransay, of Dormanstown, were also affected. The men were working on a raft at the bottom of the holder when a wave of gas overtook them. Connell managed to climb out, but Willis must have fallen back on to the raft, and it was impossible to reach him until the holder had been lowered to within a few feet of the water, and a rope had been secured to the raft to drag it to the side.

The Halifax Magistrates, on May 3, sent Ernest Robinson (20), a cotton piecer, of Greens Court, to prison for three months with hard labour for a series of thefts in which he seemed to have specialized particularly in breaking into gas meters. He had broken into a meter at Liverpool, then stolen a bicycle and ridden home to Halifax. He broke into another meter at Halifax, and rode to London on a stolen bicycle, which he sold for 10s. before stealing another bicycle to ride home to Halifax, where he got his supplies of money from another gas meter, and went to Liverpool. Having a quarrel with his mother there, he robbed her gas meter, and walked back to Halifax. There were two previous convictions against him.

The Bradford Corporation Gas Department is one of the first local trading undertakings to take advantage of an offer by the Bradford Municipal College of Art and Crafts to submit designs to traders for the improvement of the colouring, style, and lettering on motor delivery vans or wagons. The Principal of the College (Mr. W. H. Meggs) is an active member of the Bradford Publicity Club (of which the Chairman and Secretary, respectively, are Messrs. S. H. Packer and H. Wilde, of the Gas Department Showrooms). Mr. Meggs contends that the appearance of delivery vans can be greatly improved to catch the eye, please the artistic sense, and remain in public mind as an advertising factor, and the College is prepared to submit designs to any trading undertaking interested. The Gas Department has chosen a striking design for a travelling coach shortly to be put on the road.

STOCK AND SHARE LIST.

[For Stock Market Report, see earlier pages.]

Issue.	Share.	When ex-Dividend	Dividends. Prev. Hf.Yr	Dividends. Last Hf. Yr.	NAME	Quotations. May 10.	Rise or Fall on Week.	Transactions Lowest and Highest Prices.
£			%p.a	% p.a.				
171,978	Stk.	Feb 7	5	5	Aldershot 5 p.c. max. C.	70—75	..	..
412,992	,,	,,	4	4	Do. 4 p.c. Pref.	73—76	..	..
1,551,868	,,	Apl. 11	7⅞	7⅞	Alliance & Dublin Ord.	97—100	..	97½—98½
374,000	,,	Jan. 10	4	4	Do. 4 p.c. Deb.	62—66	..	..
529,655	,,	Mar. 7	7	7	Barnet Ord. 7 p.c.	114—117	+2	114½—115½
900,000	1	May 9	1/4½	1/4½	Bombay, Ltd.	20/—22/-	..	20/10½—21/-
172,500	10	Mar. 7	8½	9	Bournemouth 5 p.c.	13—13½	..	..
500,050	10	,,	7	7	Do. B 7 p.c.	12⅝—12½	..	12⅝
439,160	10	,,	6	6	Do. Pref. 6 p.c.	10⅝—11½	..	..
50,000	Stk.	Jan. 10	3	3	Do. 3 p.c. Deb.	55—58	..	..
152,025	,,	,,	4	4	Do. 4 p.c. Deb.	74—77	..	..
357,900	,,	Mar. 21	7½	7½	Brighton & Hove 6 p.c. Con.	113—116	..	..
271,880	,,	,,	6⅔	6⅔	Do. 5 p.c. Con.	99—102	..	100½
1,387,500	,,	Feb. 21	5	5	Bristol 5 p.c. max.	91½—92½a	—1	..
855,000	,,	Apl. 11	6	7¼	British Ord.	116—119	..	117½—118½
100,000	,,	Dec. 20	7	7	Do. 7 p.c. Pref.	115—120	..	..
120,000	,,	,,	4	4	Do. 4 p.c. Red. Deb.	72—76	..	..
200,000	,,	,,	5	5	Do. 5 p.c. Red. Deb.	94—97	+1	95½—96
100,000	10	Dec. 6	8	8	Cape Town, Ltd.	8—9	..	..
180,000	10	Apl. 24	4½	4½	Do. 4½ p.c. Pref.	6½—7½*	..	6⅞
150,000	Stk.	Dec. 20	4½	4½	Do. 4½ p.c. Deb.	73—76	..	76½
526,850	,,	Feb. 21	6	6	Cardiff Con. Ord.	97—100	..	..
287,860	,,	Jan. 10	7½	7½	Do. 7½ p.c. Red. Deb.	101—104	+1	102½
157,150	,,	Feb. 21	5	6½	Chester 5 p.c. Ord.	88—93b	..	..
98,938	1	May 9	1/-	1/-	Colombo Ltd. Ord.	35/—37/-*	—1/-	..
24,495	1	,,	1/4½	1/4½	Do. 7 p.c. Pref.	20/—22/-*	—1/-	..
375,402	1	Apl. 11	1/9½	1/9½	Colonial Gas Assn. Ld. Ord.	24/6—26/6	+.6	25/6
187,848	1	,,	1/7½	1/7½	Do. 8 p.c. Pref.	20,6—22,6	..	22/-
2,073,250	Stk.	Feb. 21	6	7	Commercial Ord.	98—101	..	98
475,000	,,	Dec. 20	8	8	Do 8 p.c. Deb.	66—69	..	..
900,000	,,	May 9	11	28	Continental Union, Ltd.	128—133*	+2	129—131
300,000	,,	,,	7	7	Do. 7 p.c. Pref.	124—1.7*	—3	124—129
187,560	,,	Feb. 21	7	7	Croydon sliding scale	110—113	..	112—113
103,100	,,	,,	5	5	Do. max. div.	83—86	..	..
542,270	,,	Mar. 7	7	10	Derby Con.	112—117e	..	..
55,000	,,	Dec. 20	4	4	Do. Deb.	70—72e	..	..
200,000	,,	Mar. 7	5	5	East Hull Ord. 5 p.c.	73—75	..	..
1,002,180	10	Mar. 21	†4	†7	European, Ltd.	16—18	—1	16½—17½
18,703,480	Stk.	Feb. 21	5½	5⅝	Gas Light & Coke 4 p.c. Ord.	18/10½—19/4½f	—/1½	18/10½—19/3
2,600,000	,,	,,	3½	3½	Do. 3½ p.c. max.	63—65	..	63½—64½
4,157,020	,,	,,	4	4	Do. 4 p.c. Con. Pref.	75—77	..	75⅝—76⅝
5,603,620	,,	Dec. 20	3	3	Do. 3 p.c. Con. Deb.	58½—60½	..	59½—60½
3,643,770	,,	,,	5	5	Do. 5 p.c. Red. Deb.	98—101	..	99½—102
93,500	,,	Mar. 21	7	7	Hastings & St L. 5 p.c. Conv	98—103	..	..
268,740	,,	,,	5½	5½	Do. 5½ p.c. Conv.	80—85	..	..
70,000	10	Apl. 24	†10	†10	Hongkong & China, Ltd.	13½—14½	..	..
213,300	Stk.	Mar. 7	5½	6	Hornsey Con. 5½ p.c.	86—89	..	..
1,975,000	,,	Nov. 8	10	10	Imperial Continental Gas	450—470	+25	432—480
223,180	,,	Feb. 7	8½	8½	Do. 8½ p.c. Red. Deb.	70 73	..	..
335,242	,,	Mar. 7	7½	8	Lea Bridge 5 p.c. Ord.	117 120	..	..
2,145,907	,,	Feb. 21	5½	6½	Liverpool 5 p.c. Ord.	94½—95½b	..	..
600,000	,,	Mar 21	7	7	Do. 7 p.c. Red. Pref	102—104b	..	..
185,736	,,	Feb. 21	9	8	Maidstone 5 p.c. Cap.	124—129	..	..
63,480	,,	Dec. 20	3	3	Do. 3 p.c. Deb.	54—57	..	..
75,000	5	Dec. 6	18	18	Malta & Mediterranean Metrop't'n (of Melbourne)	5½—6½	..	..
392,000	—	Apl. 2	—	5½	5½ p.c. Red. Deb.	99—101	..	..
841,920	Stk.	Nov. 22	†7	†5	Montevideo, Ltd.	107—110	+1	..
2,051,818	,,	Feb. 21	5	5⅓	Newcastle & Gateshead Con.	17/6—18/-d/	—/3	..
682,856	,,	,,	4	4	Do. 4 p.c. Pref.	74½—75½d	..	..
941,700	,,	Dec. 20	8½	8½	Do. 8½ p.c. Deb.	69½—70½d	..	..
131,760	,,	Mar. 7	7/1/0	7/1/0	North Middlesex 6 p.c. Con	105—110	..	..
900,000	,,	Apl. 24	9	7	Oriental, Ltd.	115—120	+1½	117—118
189,120	,,	Dec. 20	7½	8	Plym'th & Stonehouse 5 p.c	112—115	..	117
424,416	,,	Feb. 21	8½	8½	Portsm'th Con. Stk. 4p.c. Std	113—118	..	..
241,446	,,	,,	5	5	Do. 5 p.c. max	82—85	..	..
2,334,464	1	—	—	—	Primitiva Ord.	37/6—39/6	+3/6	34/3—39/6
244,500	100	Dec. 3	4	4	Do. 4 p.c. Red. Deb.	93—96	..	..
695,000	Stk.	Jan. 24	4	4	Do. 4 p.c. Red. Deb. 1911	79—81	..	..
416,345	,,	Dec. 20	4	4	Do. 4 p.c. Cons. Deb.	79—81	..	79½
150,000	10	Mar. 21	6	6	San Paulo 6 p.c. Pref.	8½—9	..	..
1,736,968	Stk.	Mar. 21	6½	6½	Sheffield Cons.	109—111e	..	..
95,000	,,	Jan. 10	4	4	Do. 4 p.c. Deb.	74—77e	..	..
90,000	10	June 14	‡3	14	South African	4—6	..	..
6,902,895	Stk.	Feb. 21	5	7½	South Met. Ord.	104—106	..	103½—105½
600,000	,,	,,	6	6	Do. 6 p.c. Irred. Pf.	108—111	..	108—110
1,895,445	,,	Jan. 10	8	8	Do. 8 p.c. Deb.	58—60	..	59—59½
784,000	,,	Mar. 7	6½	6½	Do. 6½ p.c. Red. Db.	100—102	+1	..
91,800	,,	Mar. 7	8½	8½	South Shields Con.	105½—107½d	..	..
1,543,795	,,	Feb. 21	6½	6½	South Suburban Ord. 5 p.c.	107—110	..	108½
468,337	,,	Dec. 20	5	5	Do. 5 p.c. Deb.	97—100	..	..
647,740	,,	Mar. 7	5	5	South'mpton Ord. 5 p.c. max.	77—80	..	78½—79½
191,375	,,	Dec. 20	4	4	Do. 4 p.c. Deb.	72—75	..	..
179,014	,,	Feb. 21	8	8	Sutton Ord.	116—119	..	..
350,000	,,	Feb. 21	7	7	Swansea 7 p.c. Red. Pref.	100—102	..	102
300,000	,,	Dec. 20	6½	6½	Do. 6½ p.c. Red. Deb.	100—102	..	..
1,002,275	,,	Mar. 7	—	6⅔	Tottenham District Ord.	105—108	..	..
150,000	,,	,,	5½	5½	Do. 5½ p.c. Pref.	97—100	..	..
181,362	,,	Dec. 6	4	4	Do. 4 p.c. Deb.	75—78	..	..
399,094	,,	Mar. 7	6⅞	7	Uxbridge, Maidenhead, & Wycombe 5 p.c.	93—98	..	..
98,880	,,	,,	5	5	Do. 5 p.c. pref.	85—90	..	..
80,000	,,	Feb. 21	8½	9	Wandsworth, Wimbledon, and Epsom— Wandsworth A 5 p.c.	147—152	..	..
356,825	,,	,,	7½	7½	Do. B 5½ p.c.	125—130	..	..
432,525	,,	,,	6½	6½	Do. C and New	102—107	..	104—107
852,000	,,	,,	6½	7½	Do. Wimbledon 5 p.c.	115—120	..	..
98,000	,,	,,	7½	7½	Do. Epsom 5 p.c.	126—131	..	129
200,000	,,	,,	5	5	Do. 5 p.c. Pref	90—95	..	91
68,418	,,	Dec. 20	3	3	Do. 3 p.c. Deb.	56—59	..	..
334,743	,,	,,	4	4	Do. 4 p.c. Deb.	77—80	..	..
207,500	,,	,,	5	5	Do. 5 p.c. Deb.	97—100	..	..

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CONTENTS.

EDITORIAL NOTES.

The Royal Charter 453
All for One 453
Competition and the Smaller Undertakings . 454
Practical Views and Theoretical Conceptions 454
Chairman of the "S.B.G.I."—"B.I.F." 1930—District Association Meetings—Fewer Strikes 455

Personal 455
Programme for the Institution Meeting . . 456
On the Electrical Side 457
National Gas Council—Meeting of the Central Executive Board 457
Gas Stock and Share Market 458
Sir Arthur Duckham's Return to England—Welcomed by the Gas Industry 459
The Principle of Insulation in a Nutshell. By H. J. Toogood 460
National Gas Council of Great Britain and Ireland—Annual Report, 1928-29 461
Sir David Milne-Watson's Address . . . 463
Resolutions 464

Wales and Monmouthshire District Institution of Gas Engineers and Managers—Presidential Address of Mr. F. Boardman . 465
Appliances and Service. By B. J. Bell . 470
Forthcoming Engagements 467
British Commercial Gas Association (Manchester District Conference)—Gas Service in Liverpool. By J. Sandon Stubbs 468
"Vibro" Concrete Piling 469
Yorkshire Junior Gas Association—Random Remarks on Distribution. By S. T. S. Musgrove 475
Avenues of Publicity. By H. Wilde . . 476
Midland Junior Gas Association—Visit to Leamington 477

REGISTER OF PATENTS.

Applications for Patents 477

MISCELLANEOUS NEWS.

Imperial Continental Gas Association—Capital Issue on Bonus Terms 478
Private Bill Procedure 478
Irish Free State—Gas-Works Undertakings . 478

MISCELLANEOUS NEWS—(*continued*).

Cape Town and District Gas Light and Coke Company, Ltd.—Annual Meeting . . . 478
Swansea Gas Light Company—Annual Superannuation and Co-Partnership Meetings . 480
Trade Notes 481
Current Sales of Gas Products 481
Coal Trade Reports—North-East Coast 482
Yorkshire and Lancashire 482
Midlands 482
Contracts Open 482
Stock and Share List 483

PARAGRAPHS.

Simultaneous Cooking of a Complete Meal—Nitrogen Fixation in France—Effect of Cold-Working on the Liability of Iron and Steel to Corrode 477
Dukinfield Gas Department Report—Montevideo Gas and Dry Dock Company—Colonial Gas Association Debenture Issue—Price Reduction at Beverley—A Parliament of Health—New Holder for Bradford—Price Reduction at Skipton—An Interesting Housing Experiment—Conway's New Gas Plant 482

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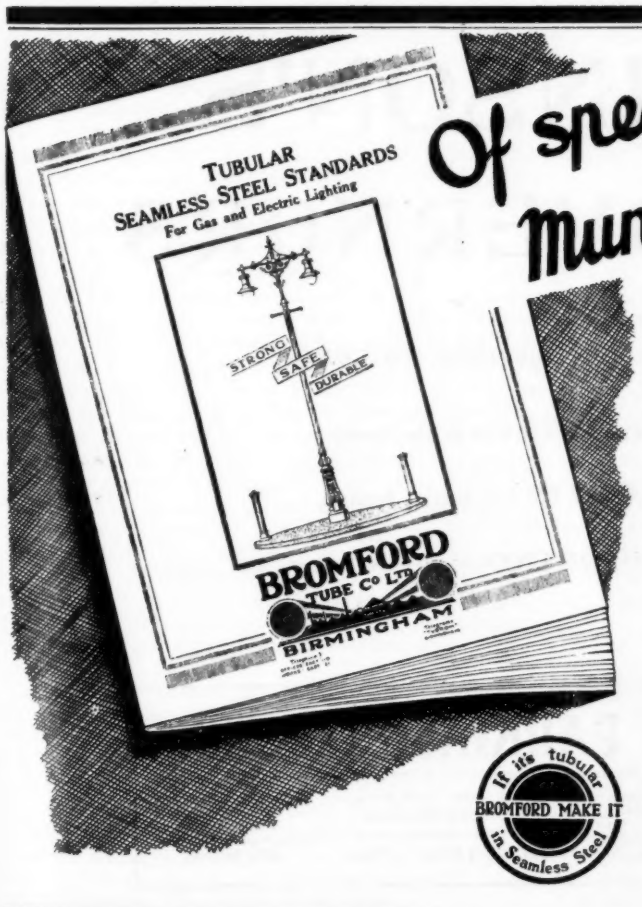

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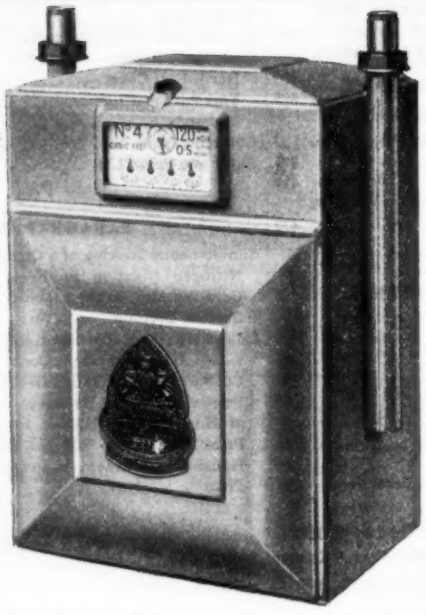

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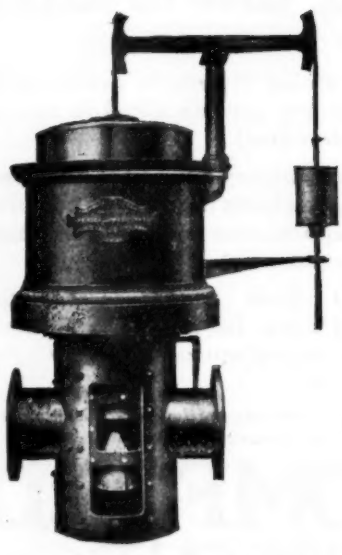

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